CHAPTER 3

# M240B MACHINE GUN

*The M240B machine gun supports the rifleman in both offensive and defensive operations. The M240B provides the heavy volume of close and continuous fire needed to accomplish the mission. The M240B is used to engage targets beyond the range of individual weapons, with controlled and accurate fire. The long-range, close defensive, and final protective fires delivered by the M240B form an integral part of a unit's defensive fires. This chapter describes the weapon and the types of ammunition in detail and provides a table of general data.*

## Section I. DESCRIPTION AND COMPONENTS

This section describes the M240B machine gun and its components and purposes. It also discusses the different types of ammunition that are fired from the M240B machine gun. This section also discusses the ammunition adapter and the blank firing adapter for the M240B machine gun.

### 3-1. DESCRIPTION

The M240B is a general-purpose machine gun. (Figure 3-1) It can be mounted on a bipod, tripod, aircraft, or vehicle. The M240B is a belt-fed, air-cooled, gas-operated, fully automatic machine gun that fires from the open bolt position. Ammunition is fed into the weapon from a 100-round bandoleer containing a disintegrating metallic split-link belt. The gas from firing one round provides the energy for firing the next round. Thus, the gun functions automatically as long as it is supplied with ammunition and the trigger is held to the rear. As the gun is fired, the belt links separate and are ejected from the side. Empty cases are ejected from the bottom of the gun. A spare barrel is issued with each M240B, and barrels can be changed quickly as the weapon has a fixed head space. However, barrels from different weapons should not be interchanged. The bore of the barrel is chromium plated, reducing barrel wear to a minimum.

**DANGER**

**DO NOT INTERCHANGE THE BARREL ASSEMBLY OR THE BOLT ASSEMBLY FROM ONE WEAPON TO ANOTHER. IF YOU DO SO, IT MAY RESULT IN DEATH OR INJURY.**

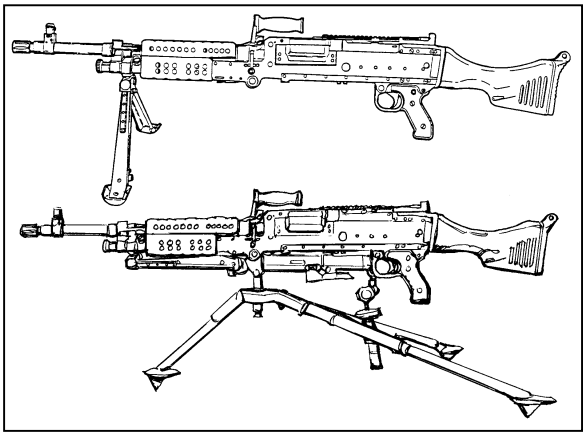

**Figure 3-1. M240B machine gun, bipod and tripod mounted.**

| | |
|---|---|
| Ammunition | 7.62-mm ball, tracer, armor-piercing, blank, dummy. Armor-piercing round is not authorized for training. |
| Tracer burnout | 900 meters |
| Length of the M240B | 49 inches |
| Weight of the M240B | 27.6 pounds |
| Weight of tripod-mount M122A1 tripod with/flex-mount, complete | 20 pounds |
| Maximum range | 3,725 meters |
| Maximum effective range | 1,100 meters with tripod and T&E |
| Area: | |
| Tripod | 1,100 meters |
| Bipod | 800 meters |
| Point: | |
| Tripod | 800 meters |
| Bipod | 600 meters |
| Suppression | 1,800 meters |
| Maximum extent of grazing fire obtainable over level or uniformly sloping terrain | 600 meters |
| Height of the M240B on the tripod mount M122A1 | 17.5 inches |
| Rates of fire: | |
| Sustained | 100 rounds per minute fired in 6- to 9-round bursts and 4 to 5 seconds between bursts (barrel change every 10 minutes). |
| Rapid | 200 rounds per minute fired in 10- to 13-round bursts and 2 to 3 seconds between bursts (barrel change every 2 minutes). |

**Table 3-1. General data.**

| | |
|---|---|
| Cyclic | 650 to 950 rounds per minute in continuous bursts (barrel change every minute). |
| Basic load of ammunition (three-man crew) | 900 to 1200 rounds. |
| Elevation, tripod controlled | +247 mils |
| Elevation, tripod free | +300 mils |
| Depression, tripod controlled | -200 mils |
| Traverse, controlled by T&E mechanism | 100 mils |
| Normal sector of fire (with tripod) | 875 mils |
| Free gun | 6,400 mils |

**Table 3-1. General data (continued).**

## 3-2. COMPONENTS

The components of the M240B machine gun and their purpose are shown in Table 3-2 and Figure 3-2, page 3-4.

| | COMPONENTS | PURPOSES |
|---|---|---|
| (1) | Barrel assembly. | Consists of the barrel, flash suppressor, carrying handle, heat shield, front sight assembly, and gas-regulator plug. Houses the cartridge for firing and directs the projectile. |
| (2) | Heat shield assembly. | Protects the gunner's hand from a hot barrel. |
| (3) | Buttstock/buffer assembly and buffer and spade grip assembly/buttstock and buffer assembly. | Composite buttstock: buffer housing that contains spring washers to absorb recoil from bolt and operating rod assembly at the end of recoil movement. |
| (4) | Receiver assembly. | Consists of receiver, handguard, bipod, and rear sight assembly. Serves as support for all major components. Houses action of the weapon and, through a series of cam ways, controls function of weapon. |
| (5) | Handguard assembly (not shown). | Provides thermal insulation to protect the gunner's hands from heat or extreme cold. |
| (6) | Cocking handle assembly. | Pulls the moving parts rearward. Moves in a guide rail fixed to the right side of the receiver. |
| (7) | Trigger housing assembly. | Controls the firing of the machine gun. Contains trigger and safety components |
| (8) | Sling and snap hook assembly. | Provides a means of carrying the weapon. |
| (9) | Bipod. | Supports M240B machine gun in prone position. |

**Table 3-2. Components and purposes.**

| | COMPONENTS | PURPOSES |
|---|---|---|
| (10) | Drive spring rod assembly. | Provides energy for returning bolt and operating rod assembly to firing position. |
| (11) | Bolt/operating rod assembly. | Provides feeding stripping, chambering, firing, extracting, and ejecting of cartridges using propellant gases for power. |
| (12) | Cover assembly. | Feeds linked belt, positions and holds cartridges in position for stripping, feeding, and chambering. Top rail configuration allows mounting of optical and electronic sights. |
| (13) | Feed tray. | Serves as guide for positioning cartridge to assist in chambering. Has a slotted top to allow air to circulate around barrel for cooling purposes. |
| (14) | Tripod assembly (not shown). | The tripod T&E mount assembly is flexible, provides a stable mount, absorbs recoil, and improves accuracy. |
| (15) | Ejection port. | Provides guide for ejection of spent cartridges. |

**Table 3-2. Components and purposes (continued).**

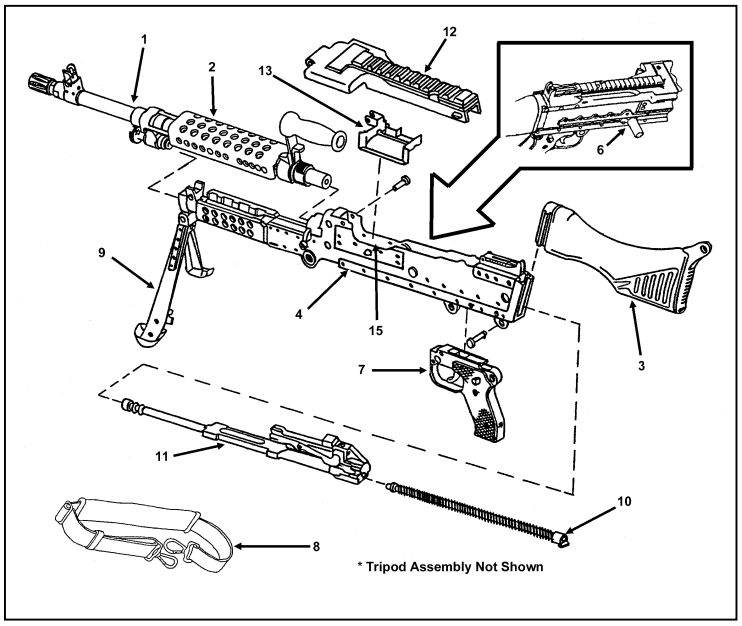


**Figure 3-2. Major components of the M240B.**

a. **Sights**. The front sight is attached to the barrel and can be adjusted for elevation and windage to allow the gunner to zero his weapon. Since the sight on the barrel is adjusted to zero the machine gun, both barrels must be zeroed before combat and training. The rear sight is attached to the rear of the receiver and is marked for each 100 meters of range, from 200 to 800 meters on the upper surface of the leaf, and on the reverse side of the leaf from 800 to 1,800 meters. (Figure 3-1)

b. **Safety Mechanism**. The safety mechanism is located on the pistol grip just behind the trigger well. When the safety is pushed to the right, the letter "S" is visible indicating the weapon is on safe. When pushed to the left, the letter "F" is visible on the safety indicating the weapon is on fire. The safety can only be engaged when the bolt is in the rear position. On the "S" position, the bolt cannot be released to go forward (Figure 3-1).

## 3-3. AMMUNITION

The M240B machine guns use several different types of 7.62-mm standard military ammunition. The specific type ammunition and its characteristics are as shown in (Figure 3-3). Soldiers use only authorized ammunition that is manufactured to US and NATO specifications. The ammunition is issued in a disintegrating, metallic, split-linked belt (Figure 3-4).

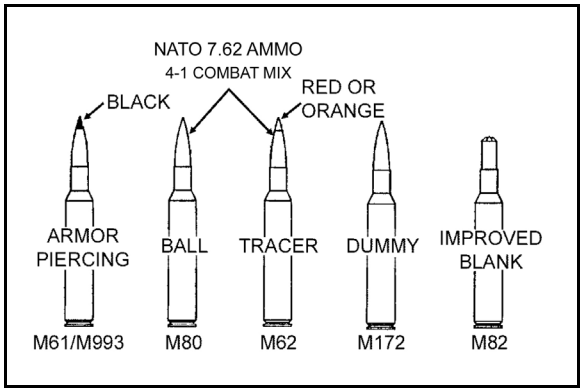


**Figure 3-3. 7.62-mm cartridges for the M240B machine gun.**

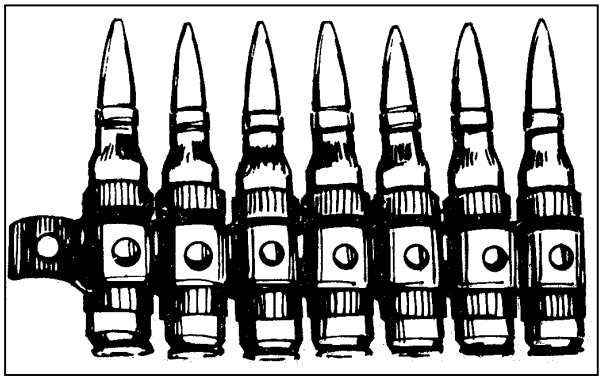

**Figure 3-4. 7.62-mm cartridge in metallic belt.**

a. **Classification.** The M240B machine guns ammunition are classified as follows:

(1) *Cartridge, 7.62-mm Ball M80*—for use against light materials and personnel, and for range training.

(2) *Cartridge, 7.62-mm Armor-Piercing M61*—for use against lightly armored targets.

(3) *Cartridge, 7.62-mm Tracer M62*—for observation of fire, incendiary effects, signaling, and for training. When tracer rounds are fired, they are mixed with ball ammunition in a ratio of four ball rounds to one tracer round.

(4) *Cartridge, 7.62-mm Dummy M63*—for use during mechanical training.

(5) *Cartridge, 7.62-mm Blank M82*—for use during training when simulated live fire is desired. A BFA should be used to fire this ammunition.

b. **Storage**. Ammunition is stored under cover. If ammunition is in the open, it must be kept at least 6 inches above the ground and covered with a double thickness of tarpaulin. The cover must be placed so that it protects the ammunition yet allows ventilation. Trenches are dug to divert water from flowing under the ammunition.

c. **Care, Handling, and Preservation**. Ammunition should not be removed from the airtight containers until ready for use. Ammunition removed from the airtight containers, particularly in damp climates, may corrode.

(1) Ammunition must be protected from mud, dirt, and moisture. If it gets wet or dirty, the ammunition must be wiped off before using. Lightly corroded cartridges are wiped off as soon as the corrosion is discovered. Heavily corroded, dented, or loose projectiles should not be fired.

(2) Ammunition must be protected from the direct rays of the sun. Excessive pressure from the heat may cause premature detonation.

(3) Oil should never be used on ammunition. Oil collects dust and other abrasives that may possibly damage the operating parts of the weapon.

d. **Packaging.** The ammunition box contains two cartons. Each carton has a bandoleer for carrying purposes. Each carton contains 100 rounds and weighs about 7 pounds. Ammunition in the bandoleers may be linked together, attached to the hanger assembly, and fired from the container or the bandoleers may be removed for firing.

## 3-4. AMMUNITION ADAPTER

The ammunition adapter is used on the M240B machine gun when firing. This adapter allows the gunner to use the 100-round carton and bandoleer. (Figure 3-5)

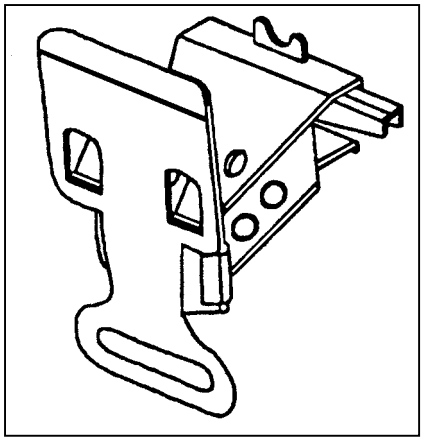

**Figure 3-5. Ammunition adapter.**

a. **Attaching the Ammunition Adapter**. The ammunition adapter is fitted to the left side and under the feed tray of the receiver. When looking at the left side of the receiver, you will see a slot and a button under the feed tray (Figure 3-5). The gunner first attaches

the bandoleer holder to the base of the adapter by inserting the tapered end (green plastic) of the holder into the adapter. Then the gunner opens the cover assembly, and raises the feed tray. He inserts the curved lip of the adapter assembly into the slot located in the rail on the left of the receiver, below the feed tray, depressing the lever on the adapter assembly, and pushing the assembly towards the receiver, until it is against the receiver. Releasing the lever to allow the adapter assembly to secure itself onto the button on the receiver (Figure 3-5).

b. **Care of the Ammunition Adapter**. Over a prolonged period, the moving parts, to include plastic, will start to wear out and break.

(1) Inspect the adapter for damaged parts, excessive wear, and cleanliness when every the weapon is taken out of the arms room.

(2) When feasible, test-fit the adapter.

(3) After using the adapter, inspect to ensure it is still operational.

## 3-5. BLANK FIRING ATTACHMENT

The BFA is used on the M240B machine gun when blank cartridges are fired to simulate live firing during training where live firing is not practical (Figure 3-6).

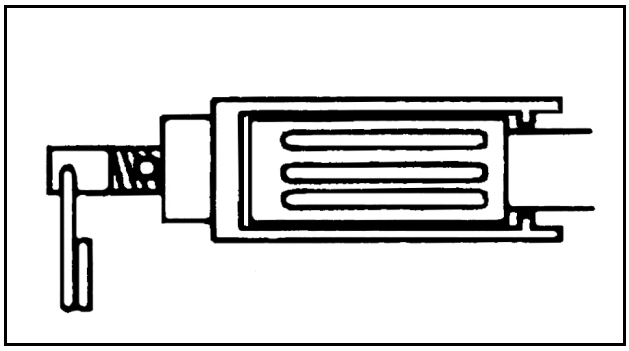

**Figure 3-6. Blank firing attachment.**

**DANGER**

**DO NOT FIRE BLANK AMMUNITION AT ANY PERSON WITHIN 20 FEET BECAUSE FRAGMENTS OF A CLOSURE WAD OR PARTICLES OF UNBURNED PROPELLANT CAN CAUSE DEATH.**

a. **Install the BFA on the M240B Machine Gun**. The BFA is used on the M240B machine gun when blank cartridges are fired to support MILES force-on-force operations to simulate live-fire exercises. The BFA fits any M240B barrel. The tube fits inside the flash suppressor with the remaining portion fitting over the outside of the flash suppressor, flush against the gun muzzle and flush with the forward end of the flash suppressor. The BFA is secured by using the following procedures:

(1) ***Attach the BFA*** (Figure 3-7). Unscrew the shaft (1) until it slides all the way to the rear. Install the chamber device (2) over the flash suppressor (3). Slide the shaft (1)

into the throat of the flash suppressor. Engage the threads on shaft into the body of the chamber device (2); turn clockwise until it is hand tight.

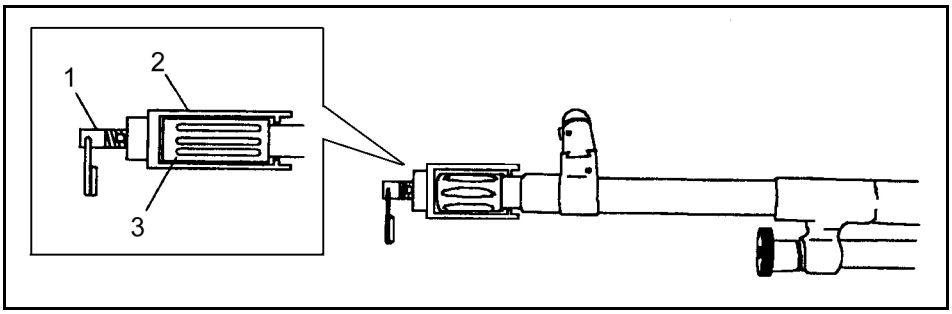


**Figure 3-7. Attach the blank firing attachment.**

(2) ***Remove the BFA*** (Figure 3-8). Hold the barrel and rotate the chamber of the body (2) about 180 degrees counterclockwise to break any carbon sealed between the shaft (1) and the suppressor (3). Unscrew the shaft (1) until the threads disengage. Remove the chamber device from the suppressor (3).

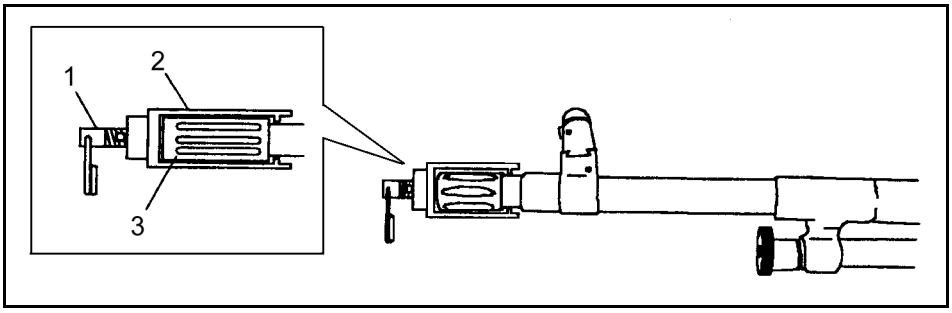


**Figure 3-8. Remove the blank firing attachment.**

b. **Care of the M240B While Using the BFA.** A buildup of carbon inside the weapon causes friction between the movi00ng parts. Carbon deposits build up rapidly when blanks are fired. When these deposits become excessive, stoppages occur. Therefore, the weapon must be kept clean, especially the gas system and chamber, during blank firing. To get the best performance with the BFA, the gunner performs the following:

(1) Inspects the weapon for damaged parts, excessive wear, cleanliness, and proper lubrication before firing.

(2) When feasible, test fires the weapon using ball ammunition before attaching the BFA.

(3) Adjusts the BFA to fit the weapon.

(4) Applies immediate action when stoppages occur.

(5) Cleans the weapon including barrel assembly, gas cylinder, gas piston, gas port, chamber bore, and BFA.

(6) Cleans and lubricates the entire weapon after firing 400 blank rounds.

**DANGER**

**1. NEVER LOAD ANY AMMUNITION OTHER THAN BLANKS WHEN THE BLANK FIRING ATTACHMENT IS IN PLACE.**
**2. NEVER FIRE THE BFA-FITTED MACHINE GUN AT PERSONNEL WHO ARE WITHIN 20 FEET OF THE WEAPON. DEATH OR INJURY COULD OCCUR.**

## Section II. MAINTENANCE

Proper maintenance contributes to weapon effectiveness as well as unit readiness. Maintenance aspects of the M240B include inspection; cleaning and lubrication; and maintenance before, during, and after firing, and during NBC conditions. Associated tasks essential to maintenance (clearing, general disassembly and assembly, and function checks) are provided in detail.

### 3-6. CLEARING PROCEDURES

The first step in maintenance is to clear the M240B (Figure 3-9). This applies in all situations, not just after firing. The gunner must always assume the M240B is loaded. To clear the M240B, the gunner performs the following procedures:

a. Move the safety to the fire "F" position.

b. With his right hand, (palm up) pulls the cocking handle to the rear, ensuring the bolt is locked to the rear (bipod mode).

c. Return the cocking handle to its forward position.

d. Place the safety on safe "S."

e. Raise the cover assembly and conduct the four-point safety check for brass, links, or ammunition.

(1) Check the feed pawl assembly under the cover.

(2) Check the feed tray.

(3) Lift the feed tray and inspects the chamber.

(4) Check the space between the face of the bolt and chamber to include the space under the bolt and operating rod assembly.

f. Close the feed tray and cover assembly and place the safety to the fire "F" position. Pull cocking handle to the rear, and pull the trigger while manually riding the bolt forward. Close the ejection port cover.

**CAUTION**

**MANUALLY RETURN THE COCKING HANDLE TO THE FORWARD AND LOCKED POSITION EACH TIME THE BOLT IS MANUALLY PULLED TO THE REAR.**

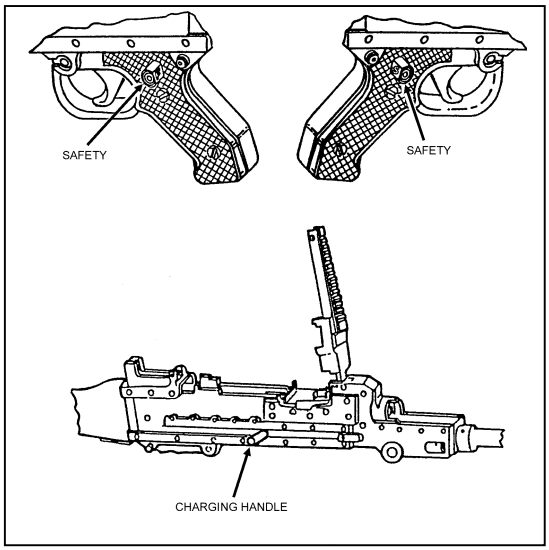


**Figure 3-9. Clearing procedures.**

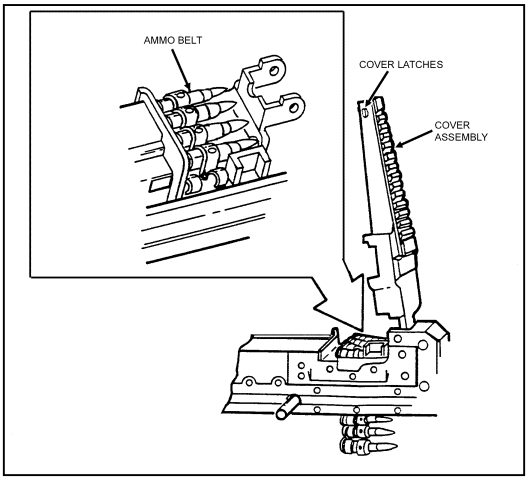


**Figure 3-9. Clearing procedures (continued).**

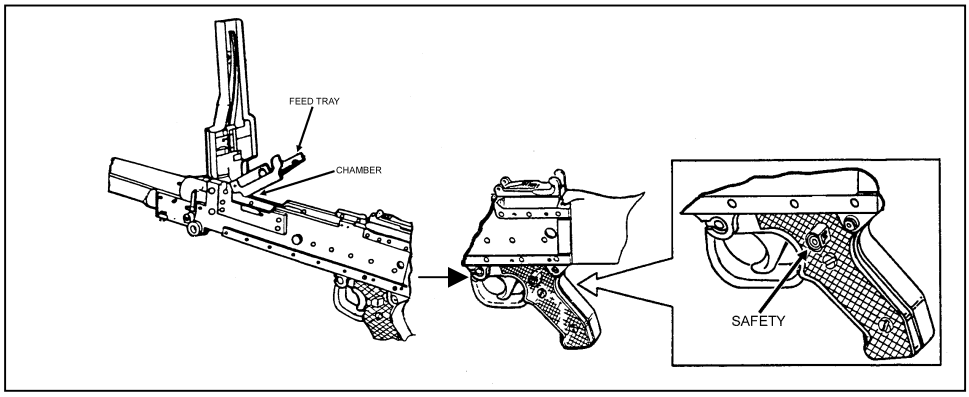


**Figure 3-9. Clearing procedures (continued).**

## 3-7. GENERAL DISASSEMBLY

The gunner performs general disassembly, which is removing and replacing the eight major groups (Figure 3-10). (The unit armorer performs detailed disassembly. Disassembly beyond what is explained in this manual is prohibited, except by ordnance personnel.) During general disassembly, the gunner clears the weapon. He ensures the bolt is forward before disassembly, and he places each part on a clean, flat surface such as a table or mat. This aids in assembly in reverse order and avoids the loss of parts.

**DANGER**

**BE SURE THE BOLT IS IN THE FORWARD POSITION BEFORE DISASSEMBLY. THE SPRING GUIDE CAN CAUSE DEATH OR INJURY IF THE OPERATING ROD SPRING IS RETRACTED WITH THE BOLT PULLED TO THE REAR.**

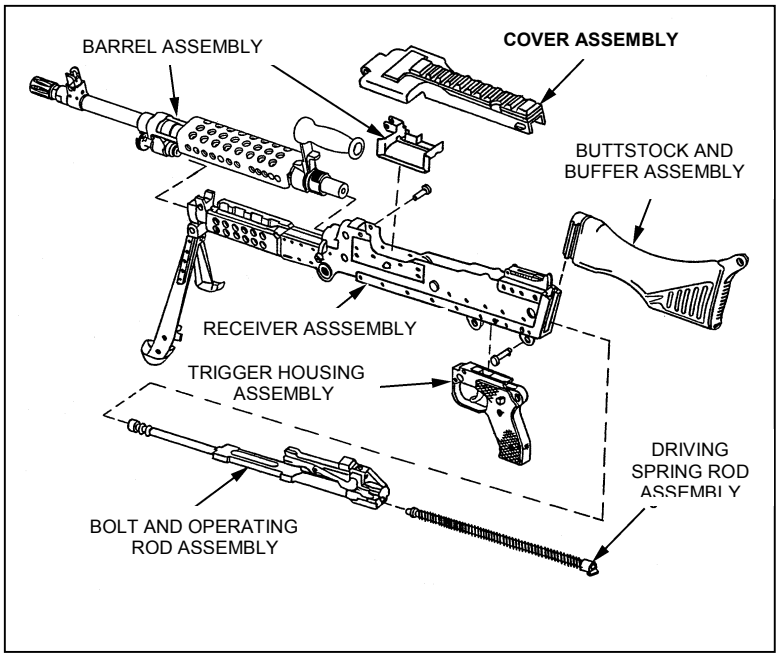


**Figure 3-10. Eight major assemblies.**

a. **Remove the Buttstock and Buffer Assembly**. Depress the back plate latch located on the underside of the butt stock where it joins the receiver. Slide the butt stock upward (straight up) and remove it from the receiver (Figure 3-11, page 3-12).

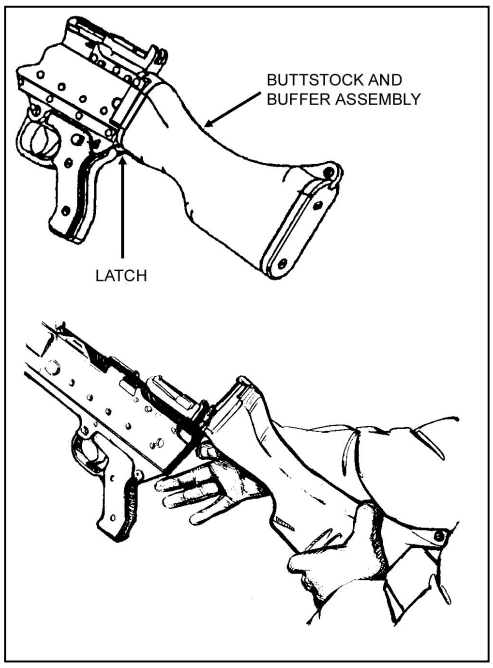


**Figure 3-11. Removal of buttstock**.

b. **Remove the Driving Spring Rod Assembly**. Push the driving spring rod assembly forward and up to disengage its retaining stud from inside the receiver (Figure 3-12). Pull rearward on the drive spring rod assembly, removing it from the receiver (Figure 3-13).

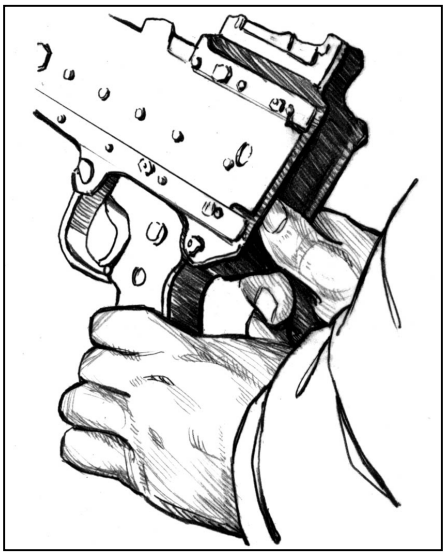

**Figure 3-12. Removal of driving spring rod assembly.**

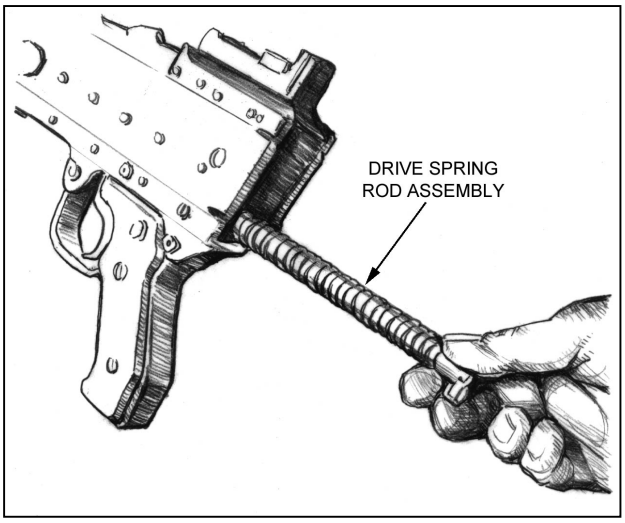


**Figure 3-13. Driving spring rod assembly.**

**WARNING**

**To avoid injury, keep face away from rear of receiver. Hold rod assembly securely as it is under tension.**

c. **Remove the Bolt and Operating Rod Assembly**. Pull the cocking handle to the rear to start the rearward movement of the bolt and operating rod assembly inside of the receiver. With the index finger, reach inside the top of the receiver and push rearward on the face of the bolt until the bolt and operating rod assembly are exposed at the rear of the receiver. Grasp the bolt and operating rod and remove them from the rear of the receiver. Return the cocking handle to the forward position (Figure. 3-14).

**NOTE:** Pulling the trigger maybe necessary to lower the sear and allow the bolt to release.

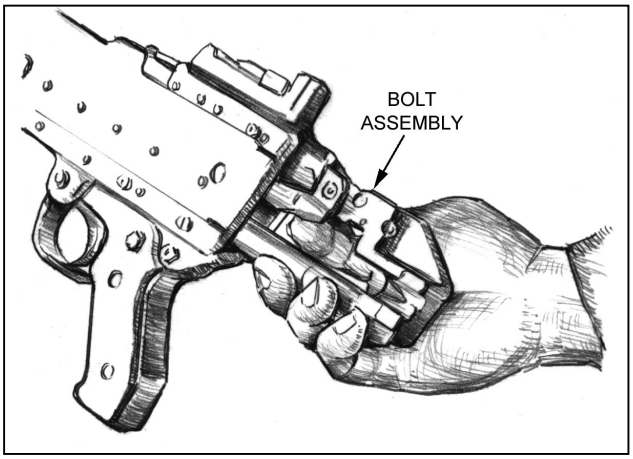


**Figure 3-14. Bolt assembly.**

**WARNING**

**When buttstock is off, do not pull the cocking handle to the rear without first removing the drive spring assembly.**

d. **Remove the Trigger Housing Assembly**. Depress spring pin and remove. You may need to use the back of the back plate of the buttstock to tap on the spring pin, then remove pin with fingers. All pins go from right to left (Figure 3-15, page 3-14). Rotate the rear of the trigger-housing group assembly down, disengage the holding notch at the front of the assembly from its recess on the bottom of the receiver, and remove the assembly from the receiver (Figure 3-16, page 3-14).

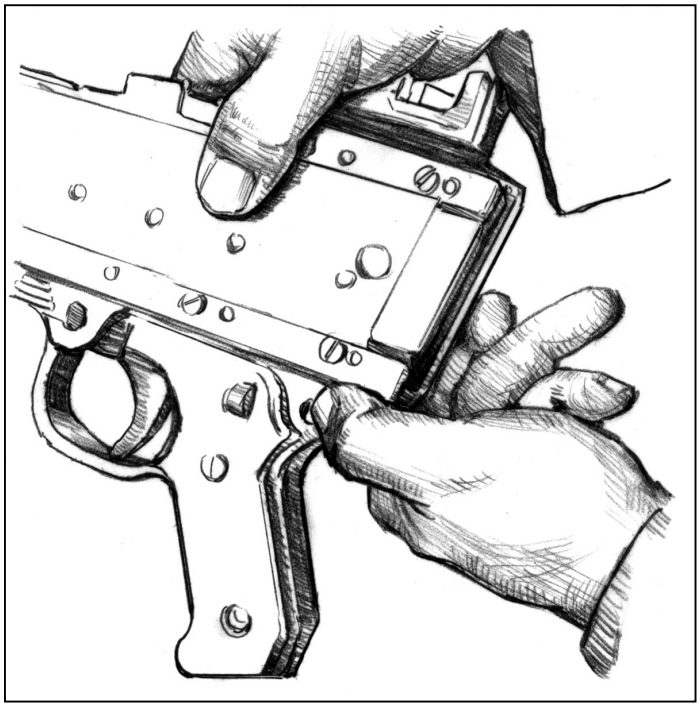

**Figure 3-15. Trigger spring pin.**

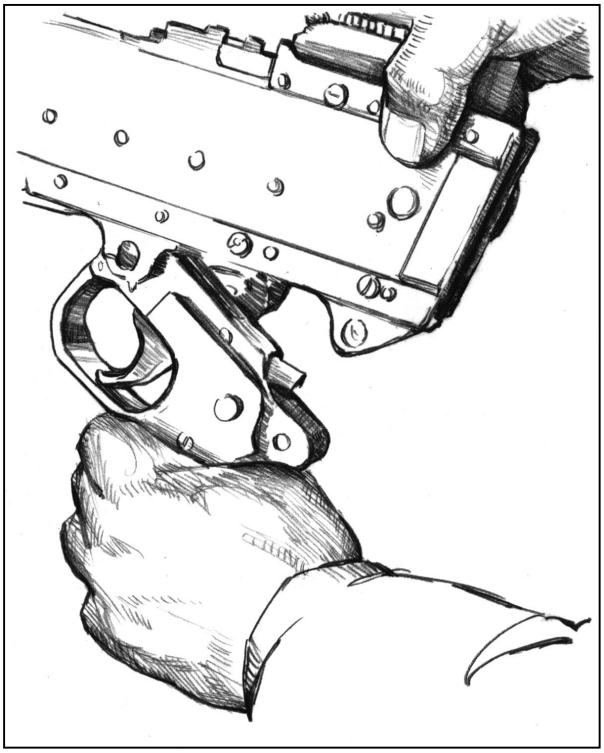

**Figure 3-16. Removal of trigger housing.**

e. **Remove the Cover Assembly**. (A) Close cover. Depress spring pin and remove. You may need to use the back of the back plate of the buttstock to tap on the spring pin. (B) Then remove pin with fingers. All pins go from right to left. (C) Depress cover latches, lift upwards and remove cover assembly. (D) Remove feed tray (Figure 3-17, page 3-16).

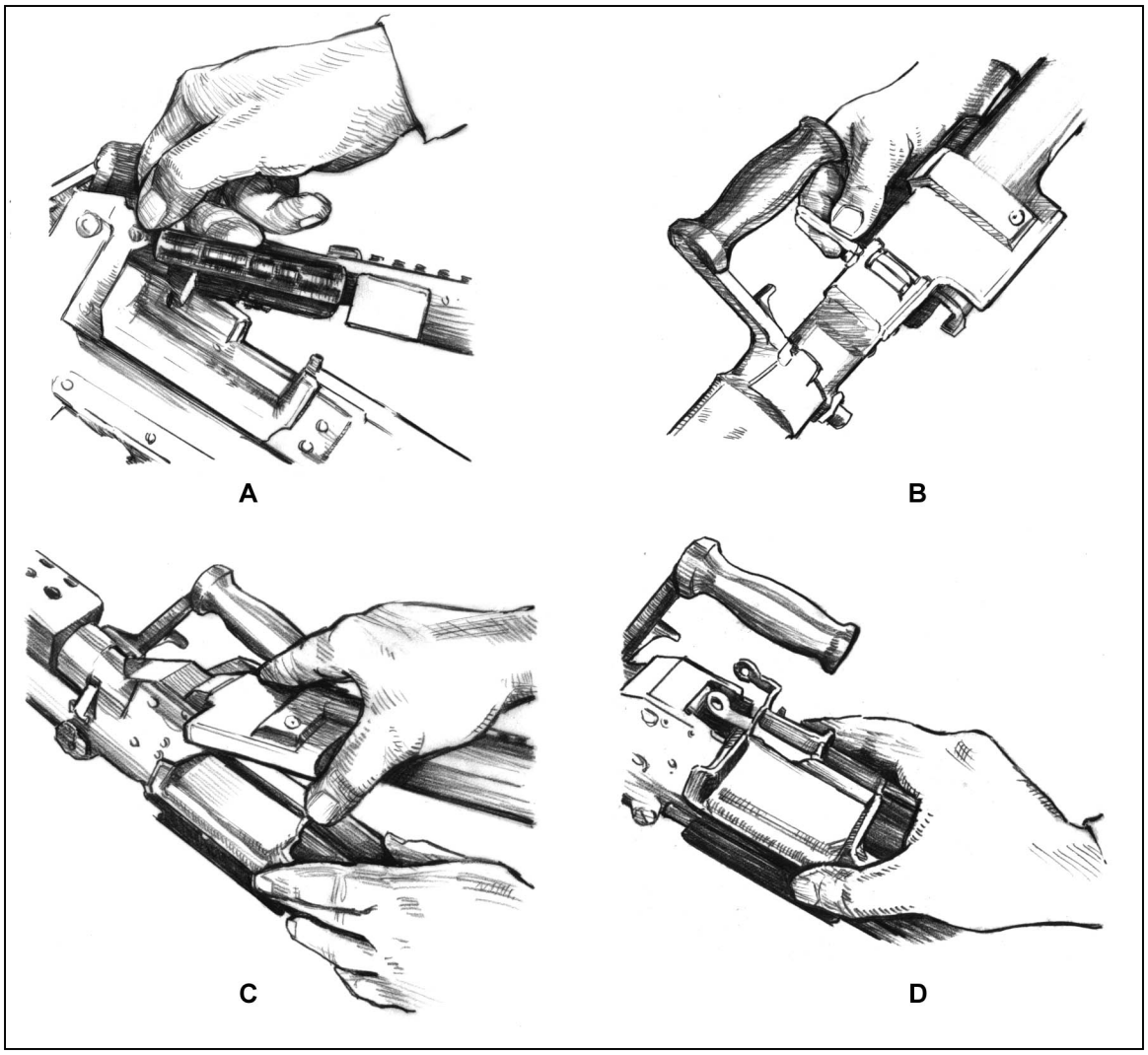


**Figure 3-17. Removal of cover, feed tray, and spring pin.**

f. **Remove the Barrel Assembly**. (A) Make sure that the barrel-carrying handle is to the right side. Depress the barrel-locking latch located on the left side of the receiver where the barrel joins the receiver and hold. (B) Grasp the barrel carrying handle and rotate the carrying handle to the upright position (without pulling up on the barrel release). (C) Then push forward and pull up, separating the barrel from the receiver (Figure 3-18).

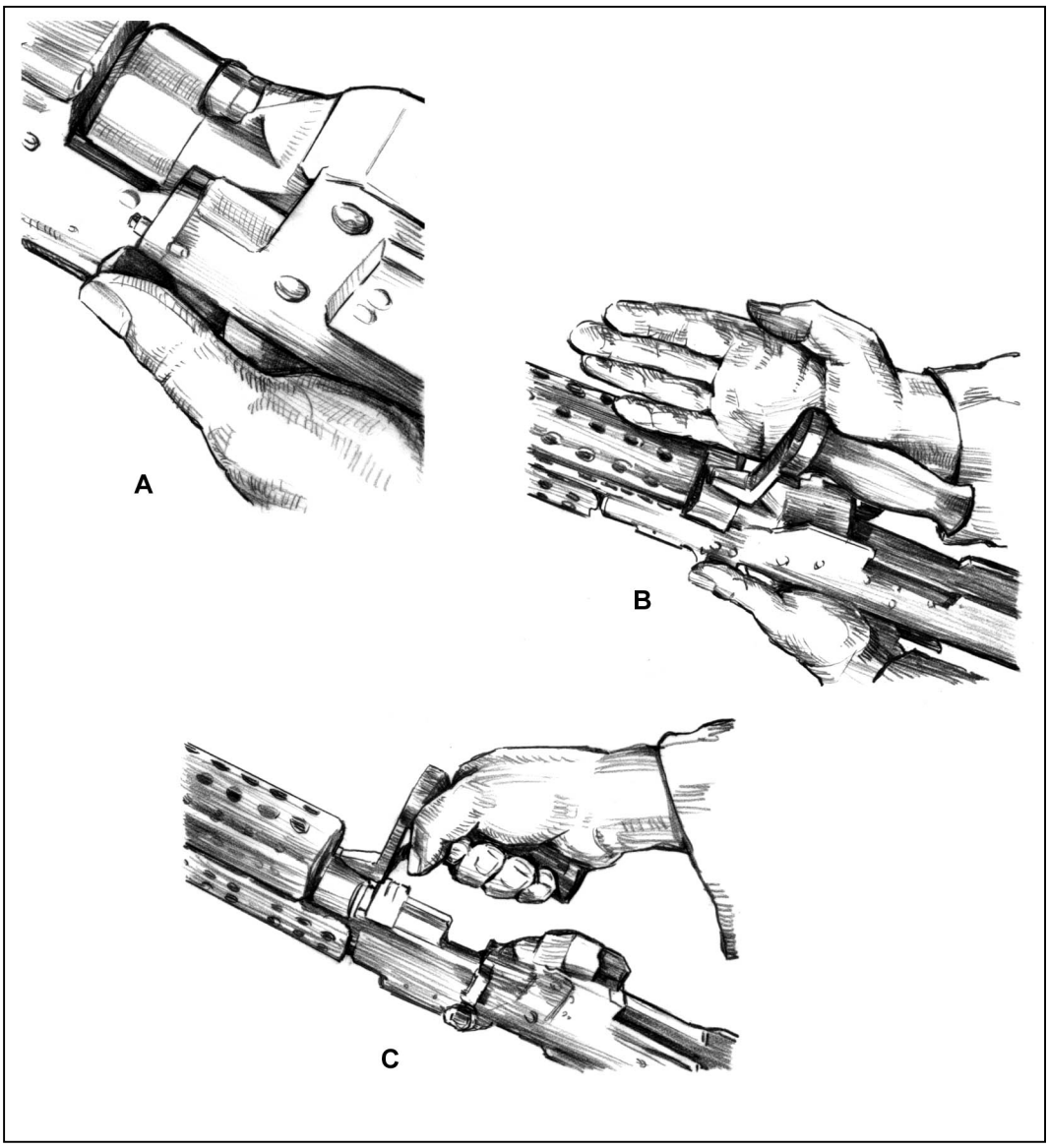


**Figure 3-18. Removal of barrel.**

g. **Disassemble the Barrel Assembly.** (A) Hold the barrel at the point where the gas system attaches to it. (B) Grasp and rotate the gas collar clockwise until it releases from the gas plug. Remove the collar from the gas plug. (C) Slide the gas regulator plug from front to rear, removing it from the gas hole bushing. (D) Remove heat shield. Lift the rear of heat shield assembly off the barrel, then pry one of the front metal tabs out of hole on gas hole bushing, rotate the heat shield towards the other metal tab, and remove heat shield from the barrel. This completes the general disassembly (Figure 3-19, page 3-18).

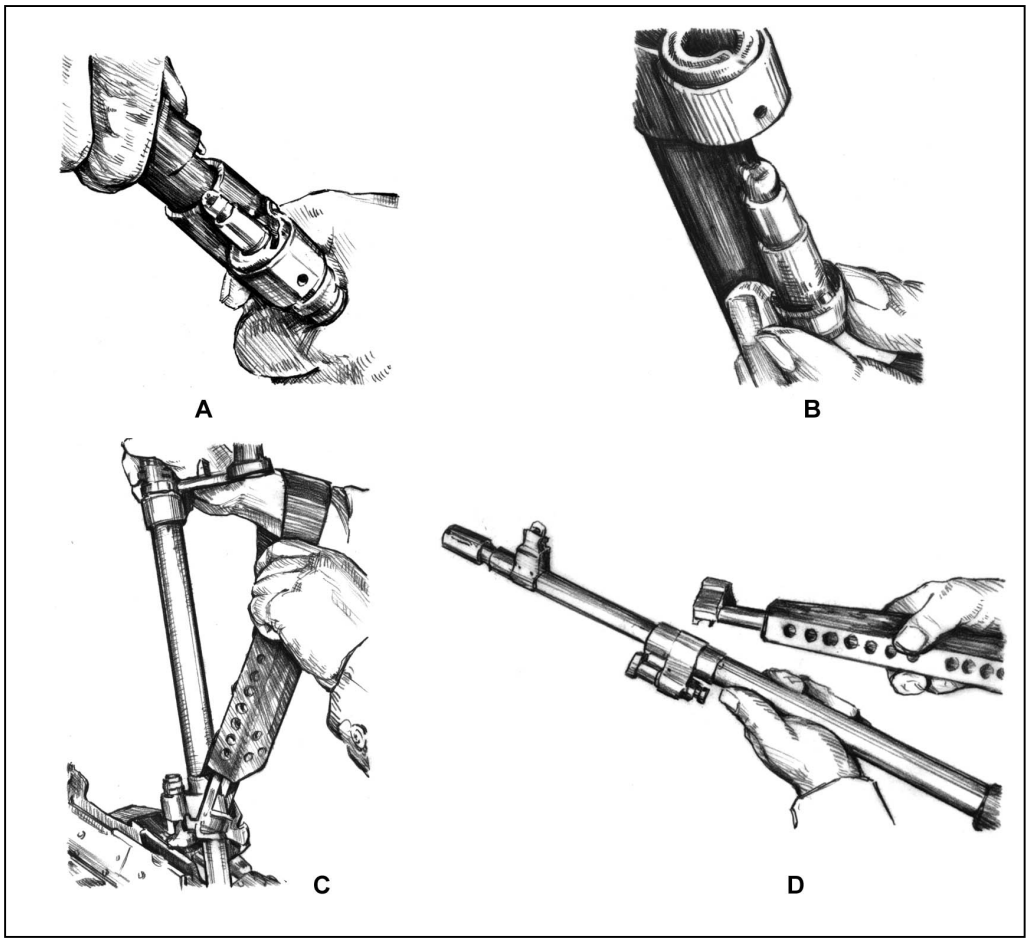


**Figure 3-19. Gas regulator and collar.**

## 3-8. INSPECTION

Inspection begins with the weapon disassembled into its eight major assemblies. Note that a shiny surface on a part does not mean the parts are unserviceable. The gunner inspects each area of the weapon and related equipment for the conditions indicated. Any broken or missing parts should be repaired or replaced IAW TM 9-1005-313-10. The gunner should perform PMCS every 90 days. If the weapon has not been used in 90 days, the PMCS in the operator's manual should be performed regardless. If you see rust on a weapon, the PMCS should be done immediately. Inspect all of the components for broken or missing parts. Inspect parts for cracks, dents, burrs excessive wear, rust, or corrosion. Inspect external surfaces for adequate finish.

a. **Barrel Assembly.** Check barrel for bulges, bends, burrs, obstructions and obstructions or pits in the chamber or bore. Disassemble, inspect, and clean the gas collar and plug. Ensure the flash suppressor is fastened securely. Inspect the front sight for damage or looseness. Inspect carrying handle assembly for bent, broken, or missing parts. Assure the heat shield is present, on the barrel assembly, and is not bent or broken, and does not have any missing parts.

**NOTE:** Some heat distortion or charring may be observed on the outer nonmetallic portion of the heat shield and is not cause for replacement. Do not apply lubricants to composite or rubber components.

b. **Buttstock and Buffer Assembly**. Check for burrs and rough edges on mating grooves and flanges. Check to be sure the back plate latch locks the buffer assembly securely to the receiver assembly when installed. Make sure the buffer plug sticks out through the back plate and is flush or higher than the protrusion below it. Make sure there is no rattling sound when the buffer is shaken and that the plug cannot rotated by finger pressure. Inspect the butt stock for cracks. Check to make sure the back plate locks the butt stock securely to the receiver assembly when installed.

c. **Driving Spring Rod Assembly**. Check the spring for broken strands. Ensure the rod assembly is not bent.

d. **Bolt And Operating Rod Assembly.** Inspect entire area of the bolt and operating rod assembly for missing parts, broken or cracked areas, burrs, bends, or pits on the surface. Looking at the bolt, you can see if the firing pin is broken. The extractor should not move. The operating rod piston should have a slight movement from left to right (about 1/8-inch turn). When the bolt and operating rod are pulled to the rear, the piston should move freely without binding.

**NOTE:** Always turn both barrels in with the weapon if damage is found on the bolt assembly.

e. **Trigger Mechanism/Housing Assembly**. Inspect the tripping lever and sear for burrs on edges. Push the tripping lever back to raise the sear, put the safety on "S," and pull the trigger. The sear should not drop down far enough to lock in the downward position. Place the safety on "F," and pull the trigger. The sear should drop down and lock in the downward position. Check the sear spring, ensuring the leg of the spring is behind the trigger pin and not between the trigger and the pin. Check grip assembly for loose or missing grip screws. Check trigger guard for bends or cracks. Check trigger spring pin for bends, and or broken or missing spring.

f. **Cover Assembly**. Pivot the feed lever back and forth to ensure it operates smoothly without binding. Push in on the cover latches to make sure the retaining clip is not weak or missing and that they do not bind in the housing. Push down on the cartridge guides and feed pawls to make sure the springs are not weak or missing. Inspect accessory mounting rail for nicks or burrs.

g. **Feed Tray**. Check for cracks, deformation, broken welds, or loose rivets.

h. **Handguard**. Check handguard for cracks, broken or missing parts.

i. **Receiver Assembly**. Check that the rear sight assembly is securely mounted to the receiver and operates properly. Check that the cocking handle operates the slide properly. Pull the cocking handle to the rear and allow it to slowly return forward, making sure that the slide does not bind in the receiver. Check for damaged or missing ejection port cover, spring, and pin. Lower and raise the bipod legs, ensuring they move freely without binding. Check bipod legs for cracks, or twisted or incomplete assembly. Check the exterior surface of the M240B for the exterior protective finish.

j. **Machine Gun**. Assemble the weapon. Be sure parts are installed correctly and are in good working condition. When installing the barrel, move the barrel release slowly to the right and count the number of clicks. Fewer than two and more than seven clicks indicate defective parts. Check both barrels. Check weapon functioning with belted dummy ammunition by performing a function check. If weapon does not function properly and the cause cannot be determined using troubling shooting procedures, notify direct-support maintenance.

k. **M122A1 Mount.** The traversing and elevating mechanism should not bind. The numbers on the scales and dials must be legible.

(1) Distinct clicks must be heard when the handwheels are turned. Index lines should be calibrated with the indicator pointer.

(2) The pintle should fit snugly in the pintle bushing, and the pintle lock should hold the pintle securely.

(3) The sleeve latch should function properly, and the traversing bar should be tight when the tripod legs are extended and latched.

l. **Carrying Case**. Maintenance tools and equipment should be complete and serviceable. The case should be serviceable. Frequent washing of the case should be avoided. Such washing may destroy the waterproofing and shrink the case.

## 3-9. CLEANING, LUBRICATION, AND PREVENTIVE MAINTENANCE

The M240B machine gun should be cleaned immediately after firing. At a minimum, the M240B should be cleaned after firing a basic load of 900 to 1,200 rounds. The gunner disassembles the M240B into its major groups for cleaning. All metal components and surfaces that have been exposed to powder fouling should be cleaned using CLP on a bore-cleaning patch. CLP is used on the bristles of the receiver brush to clean the receiver. After the M240B is cleaned and wiped dry, a thin coat of CLP is rubbed on using a cloth. This lubricates and preserves the exposed metal parts during all normal temperature ranges.

**CAUTION**

**When using CLP, do not use other cleaners. Never mix CLP with RBC or LSA. When cleaning the barrel, avoid getting CLP or RBC in the gas regulator. Damage could occur to the weapon.**

a. When cleaning the weapon, any of the previously mentioned cleaning lubricating agents can be used. As soon as possible after firing the M240B, the gunner disassembles the weapon into its eight major assemblies and cleans them as follows. Before the weapon is disassembled, ensure it is clear:

(1) Clean the bore using CLP or RBC and a bore brush with a cleaning rod. Do not reverse direction of the bore brush while it is in the bore.

(a) Run the brush through the bore several times until most of the powder fouling and other foreign matter has been removed.

(b) Swab out the bore several times using a cleaning rod and a swab wet with CLP.

(c) Swab out the bore several times using a cleaning rod and a dry swab.

(2) Clean the chamber using CLP and a chamber brush attached to a cleaning rod.

(a) Run the brush through the chamber several times until most of the powder fouling and other foreign matter has been removed.

(b) Swab out the chamber several times using a cleaning rod and a swab wet with CLP.

(c) Swab out the chamber several times using a cleaning rod and a dry swab.

(3) Clean the receiver using a receiver brush and CLP.

(a) Brush the receiver until most of the powder fouling and other foreign matter is removed.

(b) Swab out the receiver several times using a cleaning rod section and a swab wet with CLP.

(c) Swab out the receiver several times using a cleaning rod section and a dry swab.

(4) Clean the gas regulator plug with special tools (cleaning reamers and combination regulator scraper). Remove *all* carbon dust. Do not use CLP on the collar, gas block, or body.

(a) Clean each gas inlet hole of the gas regulator plug. Insert the small reamer into each hole and twist back and forth to remove the carbon (apply hand pressure only) (Figure 3-20).

(b) Clean the central hole of the gas plug by inserting the scraper tool down to the bottom of the hole and twisting firmly (Figure 3-21).

(c) Clean the two grooves by inserting the scraper tool into the grooves and applying pressure as firmly as possible (Figure 3-21).

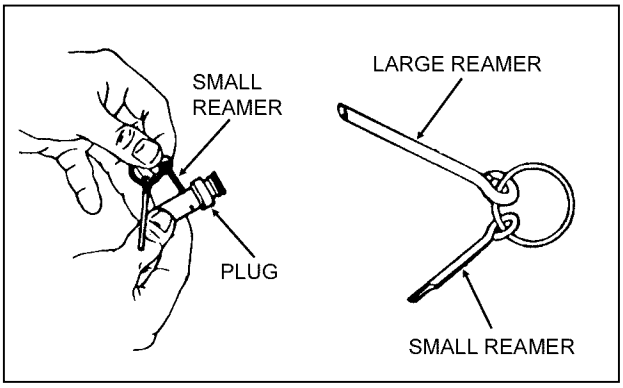


**Figure 3-20. Tools for cleaning the gas regulator plug inlet holes.**

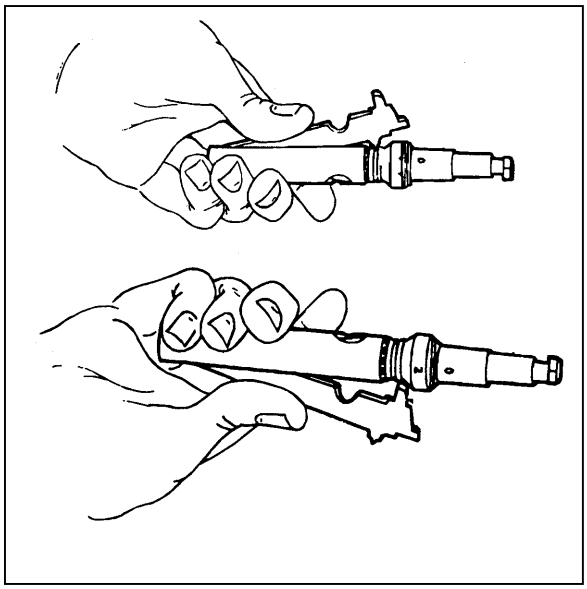

**Figure 3-21. Cleaning of the gas regulator plug grooves.**

(5) Clean the gas cylinder with the special tool scraper-extraction combination tool.

(a) Clean the front interior of the gas cylinder by carefully inserting the combination tool, with the handle upward. Be sure the tool is fully inserted and seated against the gas cylinder. Apply slight pressure to the handles and turn clockwise to remove carbon (Figure 3-22).

(b) Clean gas cylinder bore with gas cylinder cleaning brush dampened with CLP.

(c) Brush the gas cylinder until most of the powder fouling and other foreign matter are removed.

**CAUTION**

**When inserting the scraper-extractor combination tool into the gas cylinder, ensure before scraping that it is fully seated against the fore-end face of the cylinder. Damage to the fore-end of the gas cylinder could cause gas leakage and subsequent weapon stoppage.**

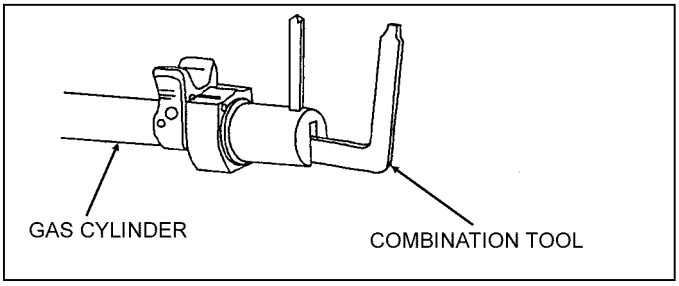


**Figure 3-22. Cleaning tool for the gas cylinder.**

(6) Clean the bolt and operating rod with the special scraper-extraction combination tool.

(a) Clean the piston head cavity by inserting the combination tool into the piston bottom of the operating rod. Squeeze handles firmly and twist the tool to remove carbon (Figure 3-23).

(b) Insert the screwdriver end of the tool into the piston to remove carbon residue on the bottom.

(c) Clean the bolt and operating rod with rag and CLP.

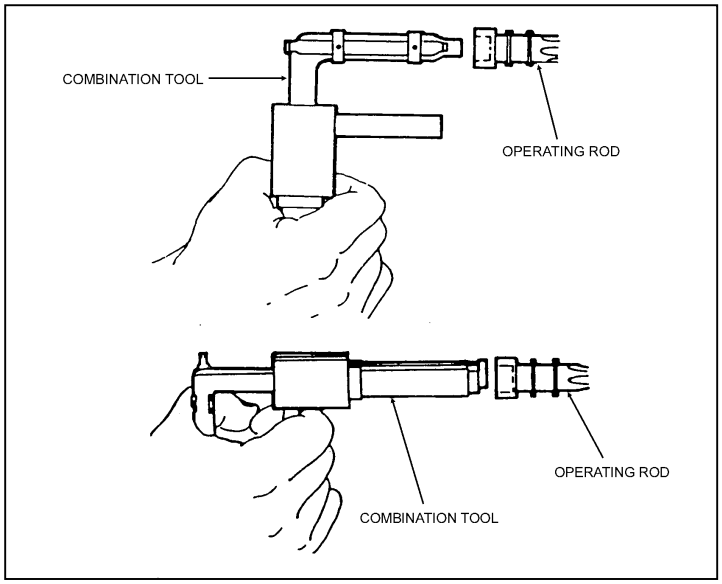


**Figure 3-23. Cleaning tool of the piston head cavity.**

(7) Remember the following important points during cleaning:

- Do not use gasoline, kerosene, benzene, shaving cream, high-pressure water, steam, or air for cleaning.
- Keep the gas hole bushing free of CLP or RBC. It must remain dry.
- During sustained firing, especially when using blank ammunition, the extractor assembly must be stripped and cleaned periodically.
- Improper cleaning of the gas cylinder and gas regulator plug will result in the two temporarily welding themselves together during firing.

(8) Lubricate the following parts with CLP as instructed:

- Driving spring rod assembly.
- Bolt.
- Receiver inner walls.
- Cover assembly (springs, and feed pawls).
- Trigger housing (inside only).

b. After lubricating, the components are cycled by hand to spread the CLP. Weapons fired infrequently or stored for prolonged periods should have a light film of CLP. This should be applied to the interior of the gas cylinder and the gas piston immediately after cleaning or after inspection. Preventive maintenance is performed every 90 days, unless inspection reveals more frequent servicing is necessary. The use of the lubricant does not

eliminate the requirement for cleaning and inspecting to ensure that corrosion has not formed. Before the weapon is used, the gas system and components must be cleaned and free of oil and lubricants.

c. All exposed surfaces of the M122A1 tripod, flex-mount assembly, complete pintle and T&E mechanism are cleaned by wiping them down with a clean rag. For T&E and pintles that have stubborn areas with hard-to-remove dirt, a steel brush or bore brush is used to loosen the dirt (do not use on the flex-mount itself). A clean rag is then used to wipe them down and CLP is used to lubricate them.

d. The following procedures apply to cleaning and lubricating the M240B during unusual conditions:

(1) Below 0 degrees Fahrenheit—use lubricating oil, arctic weather (LAW). Oil lightly to avoid freeze-up.

(2) Extreme heat—use light coat of CLP.

(3) Damp or salty air—use CLP. Clean and apply frequently.

(4) Sandy or dusty areas—use CLP. Clean and apply frequently. Wipe with rag after each application to remove excess.

## 3-10. GENERAL ASSEMBLY

After cleaning, lubricating, and inspecting the weapon, the gunner assembles the weapon and performs a function check.

a. **Replacing the Barrel Assembly**. Insert the gas regulator plug into the gas hole bushing so that it is on the number one setting. (number 1 gas setting on the regulator faces towards the barrel). Place the gas collar over the front end of the gas regulator plug, while pushing against the spring, rotate counterclockwise until it stops. Insert one of the metal tabs of the heat shield in to the hole located of the sides of the gas hole bushing, than rotate it so that the other tab locks in place. Then push down on the heat shield so that it snaps onto the barrel. With gas regulator downward and carrying handle in the vertical position, place barrel on the barrel support (located on the gas cylinder). Keeping the gun upright, pull the barrel to the rear ensuring the gas regulator is guided into the gas cylinder. Pull the barrel fully into the receiver and rotate the carrying handle completely to the right, ensuring to count the number of clicks. If the number of clicks fall between 2 to 7, the headspace is set correctly. If the number falls outside 2 to 7, turn it in to the unit armor (make sure that the threads on the barrel are located on top and bottom and on the inside of the receiver make sure that the threads are located on the left and right) (Figure 3-24).

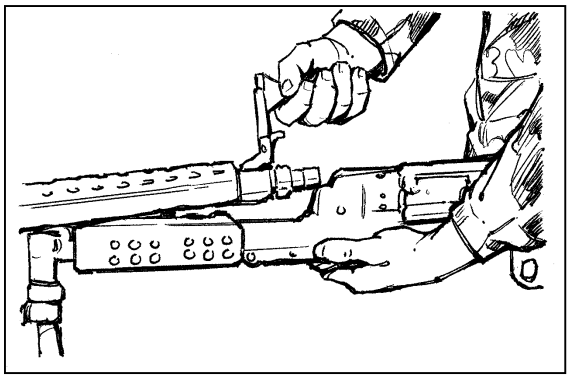

**Figure 3-24. Replacement of the barrel assembly.**

b. **Replacing the Cover Assembly and Feed Tray**. Position the feed tray on the receiver so that the feed tray guides are aligned with the receiver brackets. Place the cover assembly onto the receiver aligning its mounting holes with the mounting brackets on the receiver, close the cover assembly. Then, insert the spring pin into the holes to affix the cover and feed tray to the receiver (insert the spring of the spring pin into the hole than push in from right to left).

c. **Replacing the Trigger Housing Assembly**. Insert the holding notch on the front of the trigger housing into the forward recess on the bottom of the receiver. Rotate the rear of the trigger housing upwards and align the holes of the trigger housing with the mounting bracket on the receiver. Hold the trigger housing assembly and insert the spring pin into the hole, securing the assembly to the receiver. (insert the spring of the spring pin into the hole than push in from right to left) (Figure 3-25).

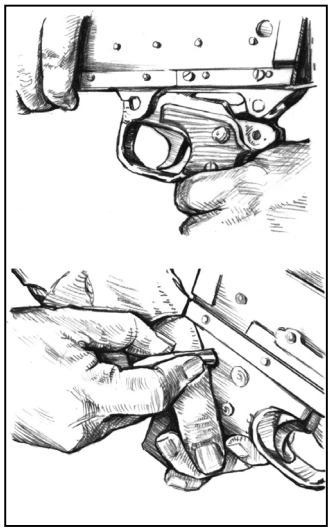

**Figure 3-25. Replacement of the trigger housing assembly.**

d. **Replacing the Bolt and Operating Rod Assembly**. Make sure the bolt and operating rod are fully extended (unlocked position). Insert the bolt and operating rod into the rear of the receiver (bolt upward, operating rod beneath bolt) ensuring the bolt is on top of the rails located on the left and right inner walls of the receiver. Push the entire bolt and operating rod assembly into the receiver as far forward as possible. Pull the

trigger to allow the sear to drop and the group to slide all the way into the receiver (Figure 3-26).

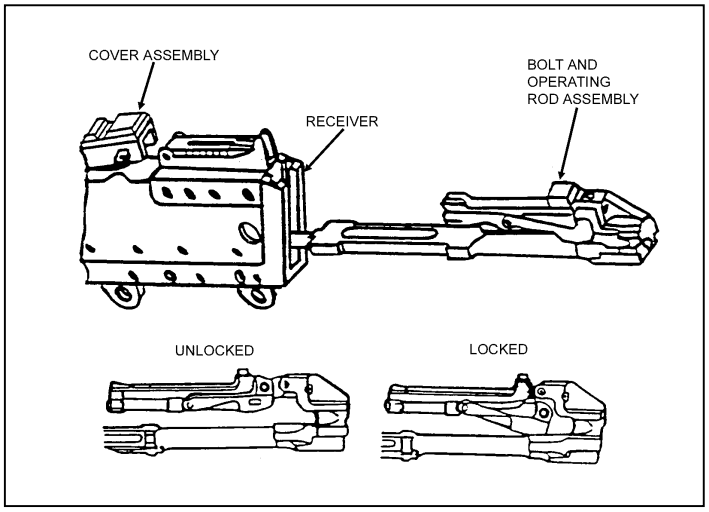


**Figure 3-26. Replacement of the bolt and operating rod assembly.**

e. **Replacing the Driving Spring Rod Assembly**. Insert the driving spring rod assembly into the receiver, sliding it all the way forward against the recess in the rear of the operating rod. Push in and lower the driving spring rod assembly to engage the retaining stud into the hole located on the bottom of the receiver (Figure 3-27).

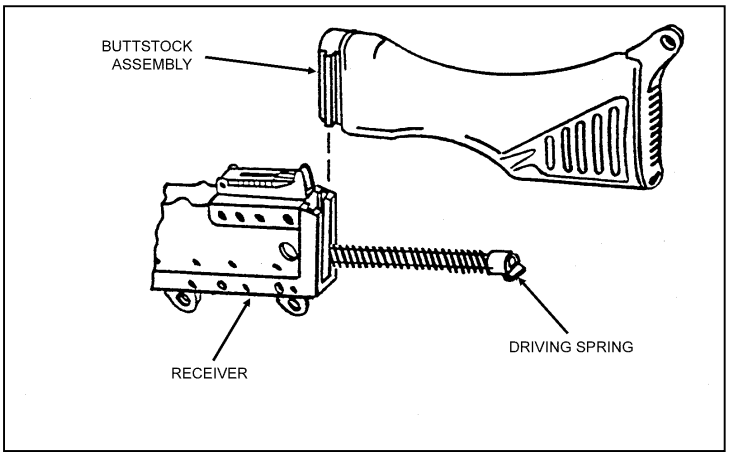


**Figure 3-27. Replacement of the driving spring rod assembly**.

f. **Replacing the Butt stock and Buffer Assembly**. Position the bottom recess grooves of the butt stock onto the top of the receiver recess grooves. Slide the butt stock down until it locks in place on the receiver. Ensure the butt stock is secure.

g. **Replacing the Handguard**. Line the handguard on the bottom of the gas cylinder and push upwards. The handguard snaps in place.

### 3-11. FUNCTION CHECK

The gunner must perform a function check to ensure that the M240B is correctly assembled. The procedures, in order, are—

a. Places the safety on "F."
b. Pulls the cocking handle to the rear, locking the bolt to the rear of the receiver.
c. Returns the cocking handle to the forward position.
d. Places the safety on "S," and closes the cover.
e. Pulls the trigger. (Bolt should not go forward).
f. Places the safety on "F."
g. Pulls the cocking handle to the rear, pulls the trigger, and rides the bolt forward.
h. Closes the ejection port cover.

### 3-12. MAINTENANCE PROCEDURES

Maintenance of the M240B requires certain actions to be taken before, during, and after firing.

a. Before firing—
(1) Wipe the bore dry.
(2) Inspect the weapon as outlined in operator's TM.
(3) Inspect the spare barrel.
(4) Lubricate the weapon.
b. During firing—
(1) Change the barrels. Changing the barrel prolongs the life of both barrels.
(2) Periodically inspect the weapon to ensure that it is properly lubricated.
(3) When malfunctions or stoppages occur, follow the procedures in Section IV.
c. After firing—
(1) Clear and clean the weapon immediately.
(2) Every 90 days during inactivity, clean and lubricate the weapon unless inspection reveals more frequent servicing is necessary (TM 9-1005-313-10).

### 3-13. MAINTENANCE DURING NUCLEAR, BIOLOGICAL, CHEMICAL CONDITIONS

If the M240B is contaminated by chemical, biological, or radiological agents, the gunner takes appropriate action to reduce exposure and minimize penetration.

a. **Chemical.** The gunner uses towelettes from the M258A1 kit to wipe off the weapon. If these are not available, he washes the weapon with soap and water.

b. **Biological**. The gunner uses towelettes or soap and water as previously described.

c. **Radiological**. The gunner wipes the weapon with warm soapy water if it is available. If not, he uses towelettes or rags. (For more details, see FM 3-5.)

## Section III. OPERATION AND FUNCTION

This section discusses the operation of the M240B machine gun. This includes loading, unloading, cycle of functioning, adjustment of the sights, and use of both the bipod and tripod.

## 3-14. OPERATION

The M240B machine gun is loaded from the closed bolt position. The M240B is fired, unloaded, and cleared from the open bolt position. The safety must be placed on "F" before the bolt can be pulled to the rear. Before belted ammunition can be used, it must be linked with the double link at the open end of the bandoleer. It must be free of dirt and corrosion. In almost all cases, the M240B machine gun can be best used when fired from a tripod; the M240B's potential for continuous, accurate fire and control manipulation is maximized. However, in some circumstances, the gunner may use the bipod mount.

## 3-15. LOADING

The gunner makes sure the weapon is cleared. He place the safety on "F." With his palm facing up, he pulls the cocking handle to the rear. This puts the bolt assembly in the rear position. When the bolt is held to the rear by the sear, he manually returns the cocking handle to the forward position, places the safety on "S." He raises the cover assembly and ensures the feed tray, receiver assembly, and chamber are clear. He lowers the feed tray, places the safety on "F," and pulls the cocking handle to the rear. While maintaining rearward pressure, he pulls the trigger and eases the bolt assembly forward. He places the first round of the belt in the feed tray groove, double link leading, with open side of links face down. He holds the belt about six rounds from the loading end, while closing the cover assembly. *Ensure that the round remains in the feed tray groove, and close the cover assembly* (Figure 3-28).

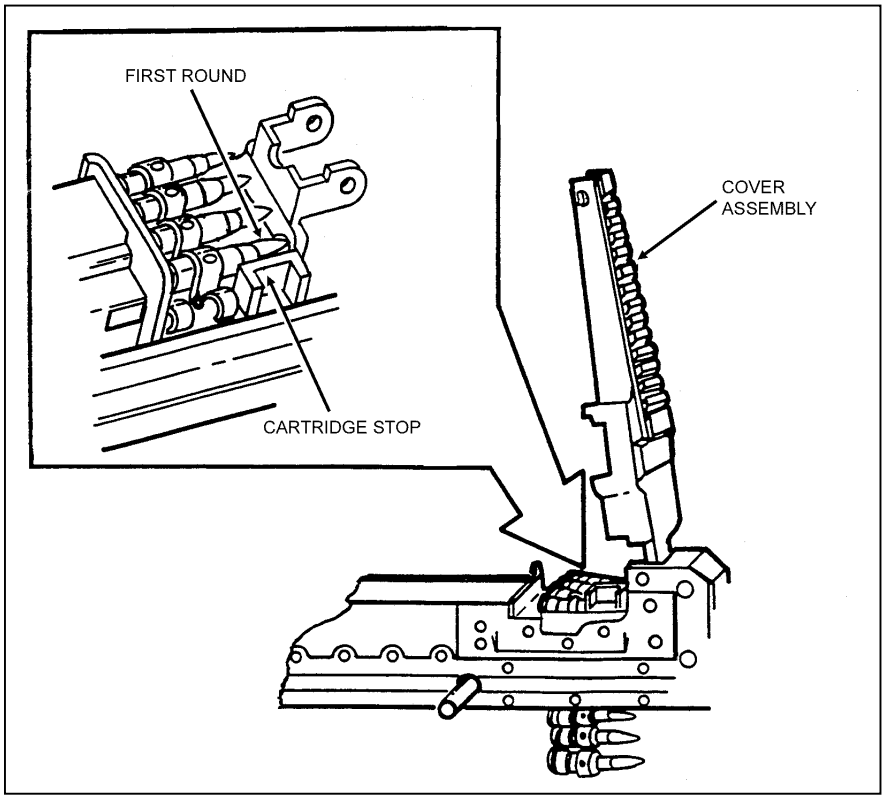


**Figure 3-28. Loading.**

**WARNING**

**The M240B is carried loaded with the bolt locked to the *rear* in all *tactical situations* where noise discipline is critical to the success of the mission. Trained gun crews are the only personnel authorized to load the M240B and only when command directs the crew to do so. During *normal training exercises*, the M240B is loaded and carried with the bolt in the *forward position*.**

## 3-16. UNLOADING

The gunner unloads the M240B by pulling and locking the bolt to the rear position, if it is not already there. He manually returns the cocking handle to its forward position. He places the safety on "S." He raises the cover assembly and removes any ammunition or links from the feed tray. He performs the four-point safety check (see Section III).

## 3-17. CYCLE OF FUNCTIONING

Crew members can recognize and correct stoppages when they know how the weapon functions. The weapon functions automatically as long as ammunition is fed into it and the trigger is held to the rear. Each time a round is fired, the parts of the weapon function in a cycle or sequence. Many of the actions occur at the same time and are separated only for teaching purposes. The sequence of functioning is known as the "cycle of functioning."

a. The cycle starts when the first round of the belt is placed in the tray groove. Then the trigger is pulled, releasing the sear from the sear notch. When the trigger is pulled to the rear, the rear of the sear lowers and disengages from the sear notch. This allows the bolt and operating rod assembly to be driven forward by the expansion of the driving spring rod assembly. The cycle stops when the trigger is released and the sear again engages the sear notch on the bolt and operating rod assembly.

b. The details of the cycle of functioning follows:

(1) *Feeding*. The actuating roller moves the feed lever side to side, which in turn moves the feed pawls. The forward movement of the bolt forces the outer pawls to the right, fully feeding the round. The inner pawl rides over the round and settles behind it. The rearward movement forces the inner pawl to the right, fully feeding the round. The action of fully feeding a round pushes the link of a fired round out of the side of the gun. The last link in a belt cannot be pushed out and is cleared during the unloading.

(2) *Chambering*. The first round is positioned in line with the chamber and is held in position by the cartridge stop and cartridge guide pawl. On trigger squeeze, the nose of the sear is depressed thus freeing the piston rod extension. The driving spring rod assembly pushes the working parts forward. The feed horn strikes the base of the round. The bolt strips the round from the belt link. The chambering ramp angles downward and, along with the spring tension of the cartridge guide pawl, forces the round toward the chamber. The cartridge guide pawl also holds back the belt link. When the round is fully seated in the chamber, the extractor snaps over the extractor rim of the cartridge, and the ejector is depressed.

(3) *Locking*. During chambering, as soon as the piston begins to move, the firing pin is withdrawn into the bolt block. The breech remains locked during the primary movement. The bolt enters the barrel breech as the operating rod is driven forward by the drive spring, and as the locking lever, which the bolt is riding on, swings forward, pushing the bolt forward and locking it to the barrel breech. Although the term "locking" is used here, in the M240B, the bolt and barrel do not physically interlock. This way, the barrel can be removed when the bolt is forward.

(4) *Firing*. As the working parts come forward and the round is fed into the chamber, the locking lever is forced down by the locking cams. This slows down the forward movement of the bolt assembly. The piston rod extension, still moving forward, causes the locking lever link to rotate downward and back. This forces the arms down to their fullest extent in front of the locking shoulder. The extractor rises over the base of the round and the ejector is compressed. The round is now fully home with the breech locked. The final forward movement of the piston extension drives the firing pin through the bolt assembly onto the cartridge primer and fires the round. The working parts are now fully forward.

(5) *Unlocking*. When the round is fired, some of the gases pass through the gas plug regulator into the gas cylinder. The rapidly expanding gases enter the hollow end cap of the gas piston and force the operating assembly to the rear. This powers the last four steps in the cycle of functioning. During the primary movement of the operating rod assembly, it moves independently of the bolt for a short distance. At this point, the locking lever begins to swing toward the rear, carrying the bolt with it into its unlocked position, and clearing the barrel breech. When the bolt assembly has been jerked back, slightly enough to unlock the breech, the primary effort is extraction of the empty case.

(6) *Extraction*. When the breech is fully unlocked and the bolt assembly starts its rearward movement, the extractor withdraws the empty case from the chamber.

(7) *Ejecting.* As the cartridge case is withdrawn from the chamber, the ejector pushes from the top, and the extractor pulls from the bottom. The casing falls down from the face of the bolt as soon as it reaches the cartridge-ejection port. The empty belt links are forced out the link ejection port as the rearward movement of the bolt causes the next round to be positioned in the tray groove.

(8) *Cocking*. As the working parts continue toward the rear, the return spring is compressed; the trigger is kept squeezed; sufficient is gas made available by the gas-regulator adjustment, which causes the working parts to rebound off the buffer; and the action of feeding and firing continues. In releasing the trigger, the sear remains down, but the tripping lever rises. As the working parts come to the rear, the end of the piston rod extension hits the tripping lever, which, in turn, allows the sear to rise and engage the sear notch, which holds the working parts to the rear.

## 3-18. SIGHTS

This paragraph provides information on how to make corrections if the initial setting is not accurate. At a 10-meter target, each paster is 1 cm. Therefore, ten clicks on the adjusting screw (windage) of the front sight assembly in either direction moves the strike of the round left or right 1 cm. One complete turn on the front sight blade moves the strike of the round up or down 1 cm.

a. **Elevation Correction**. If the shot group is above or below the point of aim, the front sight posts must be adjusted using the front sight-adjusting tool. Unlock the front-sight retaining strap and rotate it up. If the shot group is above the point of aim, rotate the sight post counterclockwise. If the shot group is below the point of aim, rotate the sight post clockwise. Rotating the front sight post counterclockwise brings the point of impact *down* on the target. Rotating the front sight post clockwise brings the point of impact *up* on the target. At a range of 10 meters, one-half turn of the front sight post blade will move the point of impact by 5 mm or .5 cm. One full turn of the front sight post blade moves the point of impact by 1 cm. After rotating the front sight post blade the desired amount, lower the retaining strap, but *do not* lock it down until elevation is confirmed. If the front sight post blade must be rotated counterclockwise to a point where its base is past flush (Number 2 blade), it should be replaced with a Number 1 front sight blade, which is smaller than a Number 2 blade. If the front sight post blade must be rotated counterclockwise to a point where its base is more than one full turn past flush (Number 1 blade), it should be replaced with a Number 2 front sight blade which is taller than a Number 1 blade (Table 3-3, page 3-32).

b. **Windage Correction.** If the shot group is to the left of the point aim, move the front sight assembly to the right to shift the point of impact to the left (towards the point of aim). Using the front sight adjusting tool, loosen (turn counterclockwise) the adjusting screw on the front sight assembly the desired amount. Then tighten (turn clockwise) the opposite side screw on the left *exactly* the same number of clicks. At a range of 10 meters, one complete rotation of the adjusting screws will move the point of impact 8 mm or .8 cm. As the adjusting screws are turned, noticeable clicks (eight per revolution) should be detected. Each click is 1 mm or .1 cm. If this is not the case, have your armorer repair it. The front sight windage adjusting procedure is the combination of creating slack on one side, and then taking up that slack from the opposite side. The front sight protector assembly should always be clamped between the heads of the two opposing screws. *Remember, each time one screw is loosened or backed off, the opposite screw must be turned exactly the same amount*. Check for play in the front sight assembly by lightly clamping it between finger and thumb and attempting to move the sight assembly laterally. If you feel no play, the windage adjustment is completed. If evident, *carefully* check both screws for looseness (Table 3-4, page 3-32).

c. **10-Meter Zeroing (Mechanical Zero)**. Ten-meter zero (mechanical zero) is the standardized starting point for all weapons in the United States Army. The gunner places the range scale on a range of 500 meters on the rear sight. He gets the front sight post blade approximately centered for both elevation and windage. The gunner identifies what number blade is on the weapon for elevation.

(1) *Number 1 blade (low 9.8mm).* Unlock the retaining strap and unscrew (counterclockwise) until the base of the blade is flush with the front sight protector surface, then make one full turn (counterclockwise). This should put the base of the blade past the base of the protector. Screw in (clockwise), counting the number of turns it takes until it stops, making sure the blade is on line with the barrel. If needed, back off until the blade is on line. Unscrew (counterclockwise) half the number of turns. This brings the blade to about the center.

*(2) Number 2 blade (high 11.8mm).* Unlock the retaining strap and unscrew (counterclockwise) until the base of the blade is flush with the front sight protector

surface. Screw in (clockwise), counting the number of turns it takes until it stops, making sure the blade is on line with the barrel, if needed back off until the blade is on line. Unscrew (counterclockwise) half the number of turns. This procedure brings the blade to about the center. Assume the prone position and sight on the target. Ensure windage is accomplished by making sure the front sight protector is centered left and right on its base.

| |
|---|
| **100 meters—one full turn moves strike 10.8 cm (4.25 inches)** |
| **200 meters—one full turn moves strike 21.6 cm (8.5 inches)** |
| **300 meters—one full turn moves strike 32.4 cm (12.75 inches)** |
| **400 meters—one full turn moves strike 43.2 cm (17 inches)** |
| **500 meters—one full turn moves strike 54 cm (21.25 inches)** |
| **600 meters—one full turn moves strike 64.8 cm (25.5 inches)** |
| **700 meters—one full turn moves strike 75.6 cm (29.75 inches)** |
| **800 meters—one full turn moves strike 86.4 cm (34 inches)** |
| **900 meters—one full turn moves strike 97.2 cm (38.25 inches)** |

**Table 3-3. Elevation correction chart.**

| |
|---|
| **100 meters—one full turn moves strike 8 cm (3.15 inches).** |
| **200 meters—one full turn moves strike 16 cm (6.3 inches).** |
| **300 meters—one full turn moves strike 24 cm (9.45 inches).** |
| **400 meters—one full turn moves strike 32 cm (12.6 inches).** |
| **500 meters—one full turn moves strike 40 cm (15.75 inches).** |
| **600 meters—one full turn moves strike 48 cm (18.9 inches).** |
| **700 meters—one full turn moves strike 56 cm (22 inches).** |
| **800 meters—one full turn moves strike 64 cm (25.2 inches).** |
| **900 meters—one full turn moves strike 72 cm (28.35 inches).** |

**Table 3-4. Windage correction chart.**

## 3-19. M122A1 TRIPOD

The M122A1 tripod provides a stable mount for the M240B, and it permits a higher degree of accuracy and control. The tripod is recommended for marksmanship training and defensive employment. The M122A1 tripod consists of the tripod,and flex-mount with T&E mechanism.

a. **Mounting the M240B on the Tripod.** The tripod assembly provides a stable and relatively lightweight base that is far superior to the bipod. The tripod may be extended and collapsed without difficulty. It consists of a tripod head, one front leg and two rear legs, and traversing bar. The traversing bar connects the two rear legs. It is hinged on one side, and has a sleeve and sleeve latch on the other that allows the tripod to collapse to a closed position for carrying or storage, or to lock in an open, extended position for use. The traversing bar also supports the T&E mechanism. The increments are numbered every 100 mils to 425 mils right of center. On the bar, there is a scale that measures direction in mils. It is graduated in 5-mil increments and numbered every 100 mils to 450 mils left of the center.

(1) The T&E mechanism provides controlled manipulation and the ability to engage predetermined targets.

(a) The traversing portion of the mechanism consists of the traversing handwheel and traversing slide-lock-lever. As the traversing handwheel is turned, the muzzle of the weapon turns to the left or right depending on the direction it is turned. Each click of the traversing handwheel indicates a 1-mil change in direction of the muzzle: 1 click equals 1 mil. There is a total of 100-mils traverse (50 mils right and 50 mils left of center).

(b) The elevating portion of the mechanism consists of the elevating handwheel. The elevating handwheel has a mil-click device built into it (1 click equals 1 mil). Engraved into the handwheel is a scale divided into 5-mil divisions and 1-mil subdivisions for a total of 50-mil increments. There are 200 mils above and 200 mils below the zero mark for a total of 400 mils in elevation change. Elevation readings are taken in two parts. First, the major reading is taken from the elevation screw plate. The second, minor reading is from the handwheel. The two readings are separated by a slash (/) when they are recorded.

(c) The traversing slide-lock-lever allows rapid lateral adjustments along the traversing bar. Direction readings are taken from the scale on the traversing bar, using the left side of the traversing slide as an index. The direction of the reading comes from the position of the muzzle, not the position of the slide.

(2) The flex-mount consists of the mount itself and the traversing and elevating mechanism. It joins the weapon and the T&E mechanism to the tripod. The flex-mount enhances the stability of the tripod platform and dampens the recoil of the weapon.

(3) To setup the tripod, the gunner unfolds the front leg and spreads the rear legs until the leg lock engages (Figure 3-29, page 3-34).

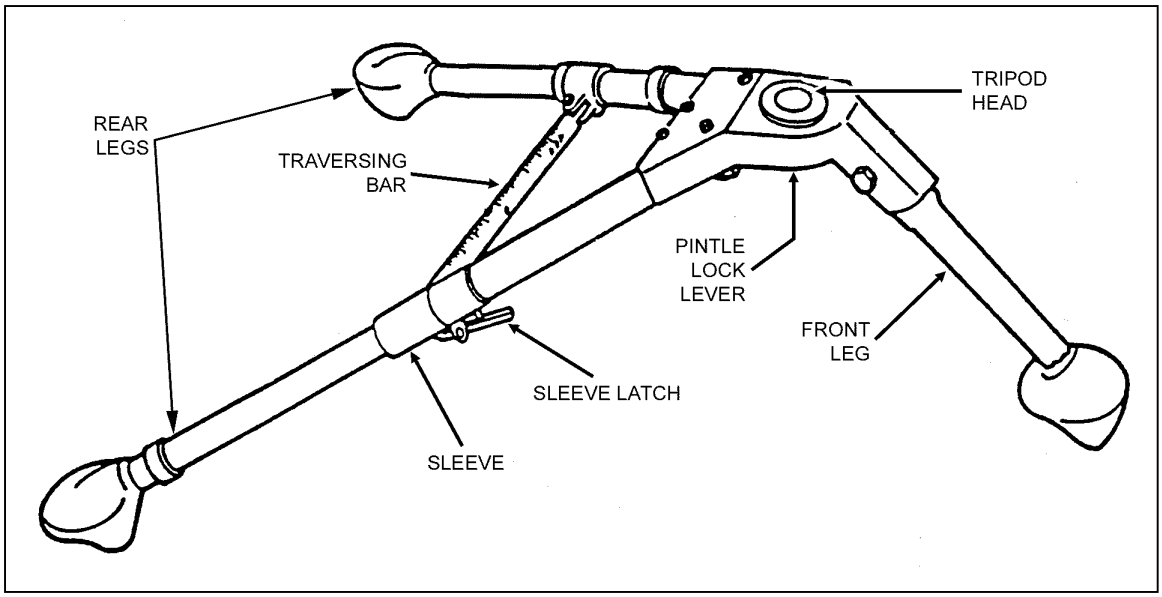


**Figure 3-29. M122A1 tripod extended.**

(4) Prepare the T&E mechanism for mounting. First center the elevating and traversing handwheel. To do this, he rotate the elevation handwheel until aboout 1 1/2 inches (two fingers) are visible on the upper elevating screw; rotating the traversing slide until approximately two fingers are visible on the lower elevating screw. The gunner rotates the traversing handwheel towards his body as far as it will go, then he turns it away two complete revolutions. He checks the traversing handwheel scale to ensure the “0” on the scale is aligned with the “0” index line before and after the two revolutions. The T&E should be centered now (Figure 3-30).

(5) Mount the T&E mechanism, pintle assembly, and fork assembly to the M122A1 tripod. With the T&E roughly centered, place the pintle assembly (1) into the sleeve bushing on the tripod leg assembly (2). Release the pintle lock (3) on the tripod leg assembly to secure the pintle assemblly to the tripod (Figure 3-30).

**NOTE**: The deflector on the fork assembly should deflect to the right.

(6) Align the holes in the fork assembly (4) with the holes in the T&E (5). Insert the pin (6) through the fork assembly and the T&E and secure with "C" clamps (7) (Figure 3-30).

(7) Mount the weapon on the M122A1 tripod assembly (Figure 3-30). Tilt the muzzle down slightly and insert the weapon's front receiver bushing (1) into the slots in the pintle assembly (2). Insert the quick-release pin (3) through the pintle (2) and front receiver bushing (1). Place the T&E assembly (5) (with fork assembly attached) onto the traverse bar (8) of the tripod leg assembly (2). Lock the T&E mechanism into place by turning the lock lever (9) clockwise. Lower the rear of the weapon into the fork assembly (4). Align the mounting holes (5) in the trigger housing with the hole in the fork assembly (4). Insert the spring pin (6) through the holes in the trigger assembly and fork but make sure the weapon is securely attached.

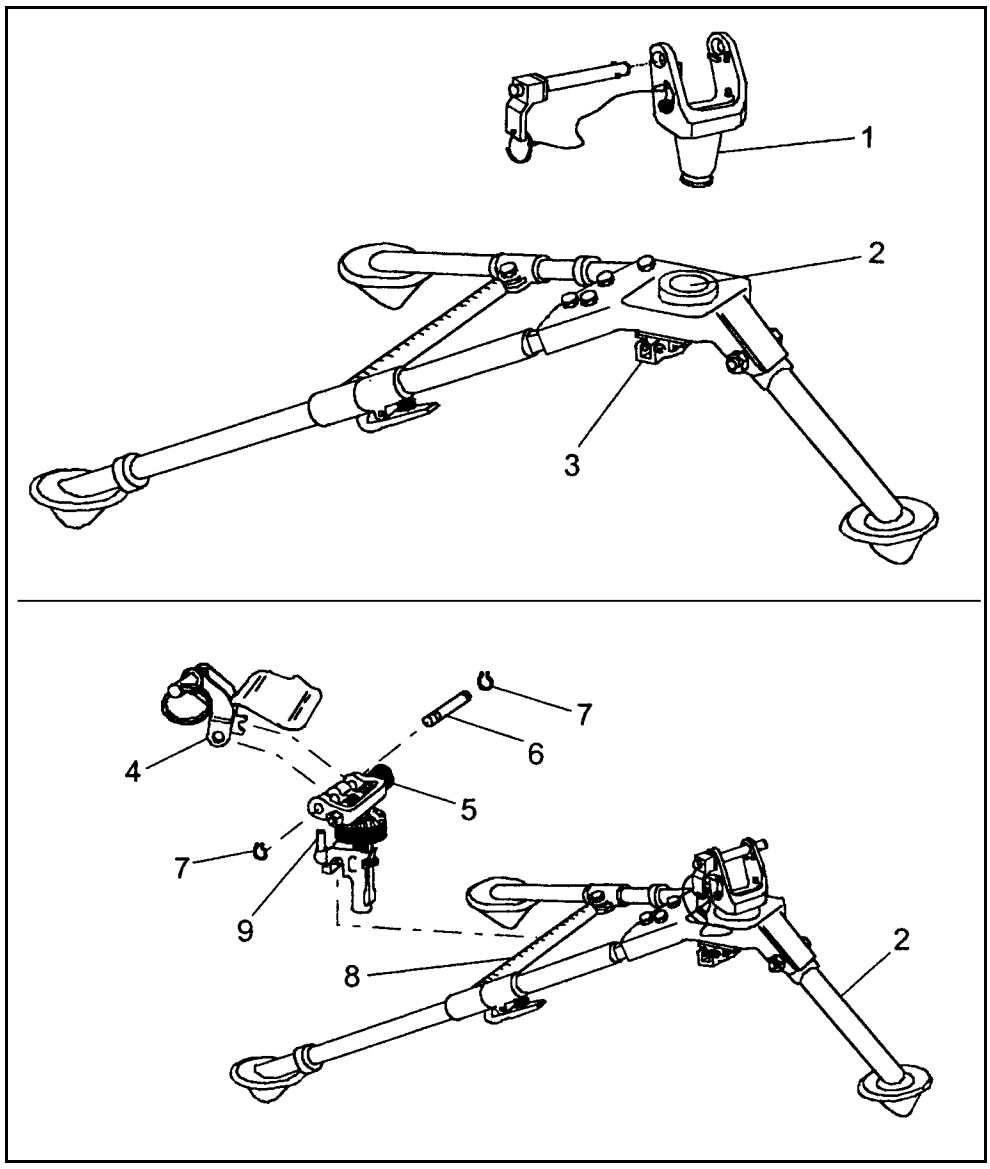


**Figure 3-30. Mounting the M240B on the M122A1.**

b. **Dismounting the M240B From the M122A1 Tripod.** The gunner dismounts the M240B from the M122A1 tripod by first removing the spring pin from the fork assembly, then he disengages the quick-release pin from the pintle and the front receiver bushing. Now, he raises the weapon up and off the tripod assembly.

## 3-20. BIPOD OPERATIONS

The bipod assembly is used to fire from the prone position. The buttstock in conjunction with the gunners nonfiring hand provides support for the weapon when firing in the bipod mode. The gas cylinder holds the bipod in place.

a. To lower the bipod legs, the gunner depresses the bipod retaining latch, while holding the bipod legs together to disengage from slots in the receiver. Then rotate the

bipod legs down and release them so they lock in the vertical position. The bipod legs of the M240B do not extend (Figure 3-31).

b. To return the bipod to the locked upright position, the gunner holds the bipod legs together to disengage them from the locked vertical position. Then he rotates the bipod legs rearward, depressing the bipod retaining latch, and engage the bipod leg hooks into the slots of the receiver. The bipod retaining latch will return to its original position, locking the bipod legs into position.

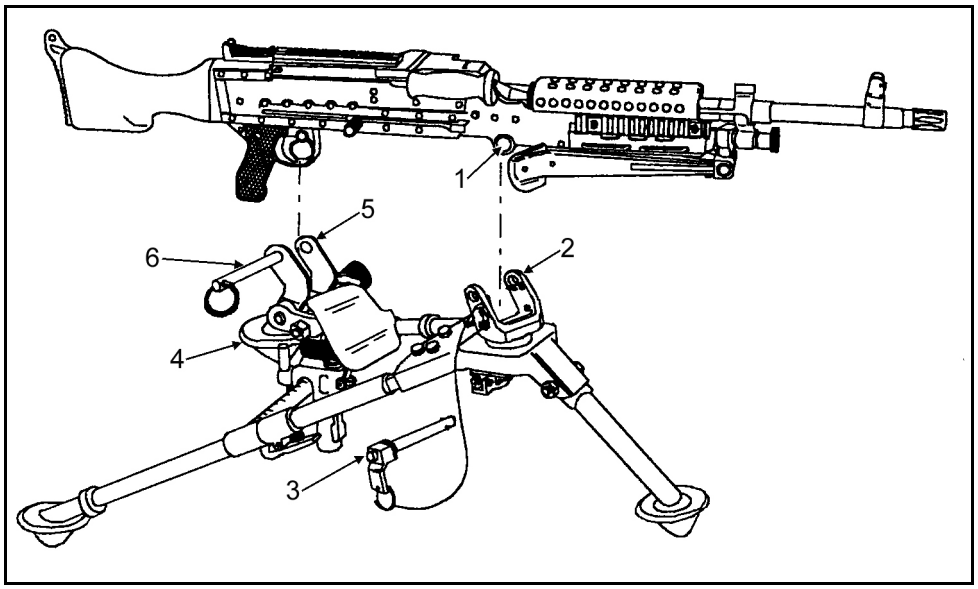


**Figure 3-31. Lowering the bipod.**

## 3-21. TRIPOD OPERATIONS

The M122A1 tripod provides a stable mount for the M240B, and it permits a high degree of accuracy and control. The gunner unfolds the front leg and positions it toward the target and spreads the rear legs until the leg lock engages.

# Section IV. PERFORMANCE PROBLEMS AND DESTRUCTION

This section identifies some of the problems that cause the weapon to perform improperly. It also explains how to identify unserviceable parts, and how to destroy the M240B when authorized to do so.

## 3-22. MALFUNCTIONS

A malfunction occurs when a *mechanical failure* causes the *weapon to fire improperly*. Defective ammunition or improper operation by the gunner is not considered a malfunction. Sluggish operation and uncontrolled fire are the most common malfunction. If cleaning and or lubricating the weapon does not fix the problem, then the gunner turns it in to the unit armorer. Table 3-5 shows malfunctions, their probable causes, and the corrective actions.

| MALFUNCTIONS | PROBABLE CAUSES | CORRECTIVE ACTIONS |
|---|---|---|
| Sluggish operation on gas regulator. | Carbon build-up. | Clean gas regulator. |
| Uncontrolled fire (runaway gun). | Broken or stuck Trigger. | |
| | Stuck sear. | Replace trigger. |
| | Broken of damaged sear spring | Replace sear spring |

**Table 3-5. Malfunctions.**

a. **Uncontrolled Fire (Runaway Gun).** Uncontrolled fire (the weapon continues to fire after the trigger is released). This is usually caused by, the gunner not pulling and holding the trigger all the way to the rear. The following are immediate actions for uncontrolled fire:

(1) The gunner holds the weapon on target and fires the remaining ammunition.

(2) The assistant gunner stops the weapon from firing by breaking the belt of ammunition.

(3) The gunner as a last resort pulls the cocking handle to the rear thus, locking the bolt to the rear of the receiver.

b. **Sluggish Operation**. Sluggish operation is due to excessive friction caused by carbon build-up, improper lubrication, or burred parts. Corrective action includes cleaning, lubricating inspecting, and replacing worn parts. The gunner may adjust the gas regulator to maintain the rate of fire until he has a chance to clean the machine gun.

## 3-23. STOPPAGES

A stoppage is any *interruption* in the cycle of functioning caused by *faulty action* of the weapon or *faulty ammunition*. Stoppages are classified by their relationship to the cycle of functioning. Table 3-6 shows types of interruptions or stoppages, their probable causes, and the corrective actions.

| STOPPAGE | PROBABLE CAUSE | CORRECTIVE ACTION |
|---|---|---|
| Failure to feed. | Insufficient gas pressure. | Clean gas port, inserts, and gas plug. |
| | Improper lubrication. | Lubricate as required. |
| | Defective links or ammunition. | Insert new link or ammunition. |
| | Ammunition belt installed wrong. | Reverse belt with open side of link down. |
| | Damaged or weak feed pawls and springs or feed lever. | Replace. |
| | Obstruction in receiver. | Remove obstruction; clean and lubricate as required. |
| | Damaged or weak feed pawls | Send to DS maintenance. |
| | Defective links or ammunition. | Insert new link or ammunition. |
| | Ammunition belt installed wrong. | Reverse belt with open side of link down. |
| Failure to chamber. | Ruptured cartridge case. | Remove IAW TM 9-1005-313-10. |
| | Damaged driving spring rod assembly. | Replace driving spring rod assembly. |
| | Damaged gas plug/collar (cracks/burrs). | Replace gas plug/collar. |
| | Built-up carbon on gas plug/collar, gas cylinder, piston or dirty chamber. | Remove carbon and clean IAW TM 9-1005-313-10. |
| Failure to extract. | Broken extractor or spring. Chipped or broken extractor. Defective extractor plunger. Insufficient gas pressure. | Replace.<br>Replace.<br>Replace.<br>Clean and lubricate as required. |
| Failure to lock. | Dirty Chamber. | Clean IAW TM 9-1005-313-10. |
| | Dirty receiver or lack of lubrication. | Clean and lubricate IAW TM 9-1005-313-10. |
| | Insufficient gas pressure. | Clean gas regulator. |

**Table 3-6. Stoppages.**

| STOPPAGE | PROBABLE CAUSE | CORRECTIVE ACTION |
|---|---|---|
| Failure to fire. | Faulty ammunition.<br>Broken or damaged firing pin or defective trigger.<br><br>Insufficient gas pressure. | Replace.<br>Replace or send to DS maintenance.<br><br>Clean gas port, inserts, and gas plug. |
| Failure to cock. | Broken sear.<br><br>Worn operating rod sear notch.<br><br>Broken, defective, or missing sear plunger and or spring. | Send to DS maintenance.<br><br>Send to DS maintenance.<br><br>Send to DS maintenance. |
| Short to recoil. | | Clean gas port and operating rod tube. Lubricate as required. Replace operating rod spring. See runaway gun (Malfunctions). |

**Table 3-6. Stoppages, (continued).**

**DANGER**

**1. IF NOTHING IS EJECTED AND THE WEAPON IS HOT (200 OR MORE ROUNDS FIRED IN LESS THAN 2 MINUTES), DO NOT OPEN THE COVER. MOVE THE SAFETY TO "S," WHICH PLACES THE WEAPON ON "S." KEEP THE WEAPON POINTED DOWNRANGE AND KEEP AWAY FROM THE WEAPON FOR 15 MINUTES, THEN CLEAR THE WEAPON.**

**2. BE CAREFUL IN CLEARING THE WEAPON WHEN THE BARREL IS HOT, A ROUND MAY FIRE (COOK OFF) DUE TO THE BARREL'S HEAT INSTEAD OF DUE TO THE FIRING MECHANISM. DURING TRAINING OR ON A FIRING RANGE, AFTER THE WEAPON HAS FIRED 200 ROUNDS, ITS BARREL IS CONSIDERED A HOT BARREL.**

**3. DURING COMBAT, WAIT 5 SECONDS, BECAUSE OF THE POSSIBILITY OF A "HANGFIRE" BEFORE APPLYING IMMEDIATE OR REMEDIAL ACTION. DURING TRAINING, WAIT 15 MINUTES BEFORE CLEARING A HOT WEAPON AND APPLYING IMMEDIATE OR REMEDIAL ACTION.**

**NOTE:** When applying immediate or remedial action on a cold or hot gun, the gunner checks to see if any part of the round (ranging from the tip of the bullet to the rim) is in the chamber. The gunner removes the ammunition from the feed tray only, then closes the cover and attempts to fire. If the weapon fires, he reloads and continues firing. If it does not fire, he clears the weapon, and he inspects the weapon and ammunition.

## 3-24. IMMEDIATE ACTION

Immediate action is action taken to *reduce a stoppage without looking for the cause*. Immediate action should be taken in the event of either a misfire or a cook off. A *misfire* is the failure of a chambered round to fire. Such failure can be due to an ammunition defect or faulty firing mechanism. A *cook off* is the firing of a round by the heat of a hot barrel and not by the firing mechanism. Cookoffs can be avoided by applying immediate action within 10 seconds after a failure to fire. If the M240B stops firing, the gunner performs the following immediate actions are taken. (An effective memory aid is POPP, which stands for pull, observe, push, and press.)

a. Pulls and locks the cocking handle to the rear while observing the ejection port to see if a cartridge case, belt link, or round is ejected. Ensures that the bolt remains to the rear to prevent double feeding if a round or cartridge case is not ejected.

b. If a cartridge case, belt link, or a round is ejected, returns cocking handle to forward position, aim on the target, and presses the trigger. If the weapon still does not fire, takes remedial action. If a cartridge case, belt link, or round is not ejected, takes remedial action.

## 3-25. REMEDIAL ACTION

Remedial action is any action taken to determine the cause of a stoppage and to restore the weapon to an operational condition. This action is taken only after immediate action did not remedy the problem.

a. **Cold Weapon Procedures**. When a stoppage occurs with a cold weapon and immediate action has failed, the gunner uses the following procedures.

(1) Pulls the cocking handle to the rear, locking the bolt. Returns the cocking handle and places the safety to SAFE.

(2) Places the weapon on the ground or away from his face and opens the cover, performs the four-point safety check. Reloads and continues to fire.

(3) If the weapon does not fire, clears the weapon and inspects it and the ammunition.

b. **Hot Weapon Procedures**. If the stoppage occurs with a hot weapon (200 rounds or more in 2 minutes or as noted above for training), the gunner moves the safety to SAFE, waits 5 seconds (during training, lets the weapon cool for 15 minutes), uses the same procedures as outlined for cold weapon procedures.

c. **Jammed Cocking Handle**. If a stoppage occurs and the cocking handle cannot be pulled to the rear by hand (the bolt may be fully forward and locked or only partially forward), the gunner takes the following steps.

(1) Tries once again to pull the cocking handle *by hand*.

**WARNING**

**Do not try to force the cocking handle to the rear with your foot or a heavy object. This could damage the weapon.**

(2) If the weapon is hot enough to cause a cook off, moves all soldiers a safe distance from the weapon and keeps them away for 15 minutes.

(3) After the gun has cooled, the gunner will pull the cocking handle to the rear. Ensures rearward pressure is kept on the cocking handle until the driving spring rod

assembly is removed. Opens the cover and disassembles the gun. (The assistant gunner helps the gunner do this.)

(4) Removes the round or fired cartridge. Uses cleaning rod or ruptured cartridge extractor if necessary.

(a) In a training situation, after completing the remedial action procedures, the gun should not be fired until an inspection by an ordnance specialist has been made.

(b) In a combat situation, after the stoppage has been corrected, the gunner changes the barrel and tries to fire. If the weapon fails to function properly, the gunner sends it to the unit armorer.

## 3-26. STUCK BARREL

Stuck barrel is the result of the machine gun crew not properly cleaning the gas cylinder and gas regulator plug. During training or range firing the M240B should be cleared, disassemble and cleaned immediately. In combat, the M240B should be cleaned as soon as possible. The gun crew performs the following actions, only if the weapon can not be properly cleaned at that time.

a. Pulls the cocking handle to the rear, locking the bolt. Returns the cocking handle and places the safety to SAFE.

b. Places the weapon on the ground or away from his face and opens the cover, performs the four-point safety check.

c. The gunner ensures that the barrel is still locked to the receiver with the carrying handle to the right.

d. The assistant gunner places the heat protective mitten on his right hand. With the mitten on he will remove the gas regulator collar from the barrel that is secured to the receiver.

e. With the gas regulator collar removed, the gunner and assistant gunner remove the barrel as outlined in Section II.

f. After removal of the barrel, the assistant gunner will remove the gas regulator collar and gas regulator plug from the spare barrel.

g With these removed the gunner and assistant gunner inserts the barrel into the socket of the receiver ensuring that the gas regulator plug is going into the gas hole bushing. Once the barrel is secured to the receiver the assistant gunner secures the gas regulator collar on the gas regulator plug.

h. The gunner, after ensuring the barrel is secured to the receiver (2 to 7 clicks) and the collar is secure, will reload and continue firing.

## 3-27. DESTRUCTION PROCEDURES

Destruction of any military weapon is only authorized as a last resort to prevent enemy capture or use. This paragraph discusses the field-expedient means of this destruction; it does not replace published policies. In combat situations, the commander has the authority to destroy weapons, but he must report this destruction through channels.

a. Disassemble the weapon as completely as time permits. Use the barrel or tripod mount to destroy the bolt and operating rod assembly, barrels, rear and front sights, and mounts.

b. Bury the disassembled weapon or dump the parts into a stream, a sump, or a latrine.

c. Burn the weapon by placing an incendiary grenade on the receiver group over the bolt (with the cover resting on the grenade) and detonating the grenade.

d. Smash the traversing and elevating mechanism and pintle assembly. Bend the tripod legs.